THE RESERVE BANKS

AND THE

MONEY MARKET

By

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With an Introduction by

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HARPER & BROTHERS PUBLISHERS

NEW YORK *and* LONDON

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THE RESERVE BANKS AND THE MONEY MARKET

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Fourteenth Printing

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INTRODUCTION

THE twenty years of discussion of banking and currency reform which preceded the enactment of the Federal Reserve Act showed the extent to which political and sectional dissension even to the point of bitterness can be aroused by such subjects. Our history from the beginning of the government is filled with controversies about "money." It was in this atmosphere that the Federal Reserve Act was drafted and the System inaugurated.

Further difficulties arose from the existing complication of our banking system. While the National Bank Act prescribed uniform structure, functions, and supervision for national banks, the forty-eight states had separate systems with widely varying characteristics. In general, state banks were of three classes—commercial banks, trust companies, and mutual savings banks; but they had various reserve requirements, conducted a great variety of business, and supervision differed greatly Since the enactment of the Federal Reserve Act the number of these independent banks of all sorts has varied from 25,000 to 30,000. No change in our currency and banking system would have been accepted which involved any general disturbance to the existing practices and the vested rights of this great number of banks. The new organization had to be superimposed upon an already complicated

system, and the execution of each one of the functions of the Reserve Banks involved more or less competition with the member banks which furnished the capital and deposits of the Reserve Banks.

With this rather ominous outlook the Reserve Banks came into being at the beginning of the greatest war in history. No specific provision could have been made in the Act for such an emergency, as its authors had no thought of even the possibility of so serious a world calamity. It is immensely to their credit that this great piece of legislation, prepared without special regard to the exigencies of war, so nearly met the needs of war finance.

Undoubtedly, what would have been a normal development of the System in time of peace is greatly obscured by the occurrences of the war, which involved the System in operations of such magnitude and of so unusual a character that judgment as to what its normal development will be should even now be suspended. For a time criticism and objection were dormant, the preoccupation of the war having turned men's minds in other directions. But after the war emergency had passed, discussion and criticism of the System, its functions, operations, and policies, became vigorously active.

In view of these circumstances it is not strange that much, if not most, of the public discussion of the Federal Reserve System has been controversial and has centered upon the part played by the System in the so-called "war inflation" and "agricul-

tural deflation," or upon those various instances in which the System appears to have clashed with what were regarded as the vested rights of the country's thousands of independent banks. As the System has gained general public approval, disputes have also arisen as to who may rightfully claim its authorship.

More recently, however, interest in the Reserve System has shifted, and there has grown up a demand for more information as to the significance of its normal daily operations and more explanation of the basal considerations in determining Federal Reserve policies. The controversies over the part played by the System in the war and post-war period are receding into history. Member banks generally have accepted as minor costs of a major improvement such losses as may occasionally result from Federal Reserve competition. The passage early in 1927 of the bill providing for indeterminate charters for the Reserve Banks has marked the passing of the early controversies. In their place there has arisen increasing discussion as to the precise relationships between the Reserve Banks and the money markets and the effects of Federal Reserve action upon credit conditions.

The operating officials of the Reserve Banks, notwithstanding the mass of literature which has already appeared, are constantly being asked for some description of the System's functions and methods which will show its place in the economic life of the country, which will be comprehensive and at the same time sufficiently simple and illuminating as to

be truly instructive to the average reader. Dr. Burgess has undertaken to prepare such a book in response to a widespread demand both in this country and abroad. He has scrupulously avoided elaboration of the intricate technicalities of reserve banking and exploration into the unlimited field of theory. But the book is more than a popular treatise; though written in simple language, it constitutes an important contribution to economic science. Dr. Burgess's experience in a responsible office in the Federal Reserve Bank of New York for the past seven years has been of a character which gives him intimate knowledge of the functions and services not only of the Federal Reserve Bank of New York, but of the System as a whole.

He and his coworkers have over a series of years conducted scientific studies of various aspects of Federal Reserve operations, especially of the relation of the System to the money market, which have proved of daily practical value to the operating officers of the New York Reserve Bank. The results of several of these research studies are reported in this book.

Should it appear to the reader that undue weight is given to the relation of the Federal Reserve System to the country's central money market, there are certain facts in that connection which may well be considered. While the Federal Reserve System is truly a regional system, each Reserve Bank being largely autonomous in its domestic operations, it nevertheless is a national system and does not attempt to encourage or enforce banking or financial

development in this country in twelve separate watertight compartments. Such an extreme application of the regional principle would have been injurious to the nation as a whole. So the evolution of the System's affairs has resulted in a very proper and necessary coordination of the operations and policies of the Reserve Banks. Investment and open-market transactions must be conducted harmoniously and, necessarily, the largest volume of these transactions is executed in New York. The same applies to the immense services performed as fiscal agents for the United States Government, and to all the foreign business of the Federal Reserve System.

Many of these most important phases of Federal Reserve operations center about the New York money market, where the financial headquarters of many national industries are located, where money rates are determined, and where most of the contacts with foreign money markets occur. In devoting itself so largely to money-market relationships this volume, therefore, selects for special treatment phases of Federal Reserve operations which are much broader than the operations of the New York bank alone and are central to any understanding of the influence of the Reserve System upon credit and currency in this country.

Probably no business organization has ever been created which has had so rapid and substantial a growth as has the Federal Reserve System, nor has any yet been developed which has so promptly taken its place as a world influence. Its service to our own country and to the world at large, not only in con-

nection with the financing of the war but in facilitating the world's recovery from its devastating effects, will be promoted by a better understanding of its operations and of its purposes. This is the design of the book.

BENJAMIN STRONG.

NEW YORK CITY,
September 20, 1927.

PREFACE

Every institution gradually gathers around itself a group of facts about its operations, and an interpretation of these facts which becomes its operating philosophy. This book is an attempt to set down some of the facts and philosophy of Federal Reserve operations which have grown up about the Federal Reserve Bank of New York, as they appear to one member of the staff.

The sources for the book include the official reports of the Federal Reserve Bank of New York and the Federal Reserve Board, testimony at various congressional hearings, the excellent general description of Federal Reserve structure and functions in Goldenweiser's *Federal Reserve System in Operation,* the "Letters to College Classes" prepared by Deputy Governor Peple of the Federal Reserve Bank of Richmond, and other previously published works on the Federal Reserve System by Kemmerer, Willis, Reed, Beckhart, Harding, and Glass, and many unpublished memoranda and unwritten discussions. As an attempt to set down something of the working philosophy of the New York Reserve Bank, the book owes a large debt to all those of the staff of the bank who have helped to formulate that philosophy and particularly to Benjamin Strong, governor, and Pierre Jay, former chairman of the board, who together organized the bank, fostered

its growth, and were its tutors in its development to an important place in the world family of banks of issue.

The writer owes a personal debt to Mr. Strong and Mr. Jay for their encouragement in writing this book, for their review of the manuscript, and their many helpful suggestions. Acknowledgment of indebtedness is also made to Deputy Governor J. Herbert Case and other operating officers of the bank, who have tested many theories in the crucible of experience; to Carl Snyder, the writer's associate in the statistical work of the bank, who has been ever a friendly councilor, and to the members of the Reports Department, all of whom directly or indirectly had a part in the making of this book. In particular, Alfred Inge, Harold Roelse, Charles Kayser, Berenice Vance, Elizabeth Hicks, and Lucile Bagwell have given invaluable painstaking aid in checking statistics, verifying references, and reading proof, and Anna Rock has spent many hours in preparing manuscript. All the diagrams and maps were prepared by Frederic Ehrlich and his assistants.

Special thanks are also due to E. A. Goldenweiser, Director of the Division of Research and Statistics of the Federal Reserve Board, Walter W. Stewart, Henry A. E. Chandler, Leonard P. Ayres, George B. Roberts, Robert Warren, and May Ayres Burgess, who have read parts or all of the manuscript and made valuable suggestions.

The book had its earliest beginnings in a series of brief articles descriptive of System operations appearing in the *Monthly Review* of the New York

Reserve Bank, and prepared jointly by Pierre Jay, Shepard Morgan, and the writer. Some of the material appeared during 1925 and 1926 as articles in the *American Bankers Association Journal* and the *Harvard Review of Economic Statistics*, and is reproduced here by permission.

The author is alone responsible for the selection of material, expressions of opinion, and errors.

W. R. B.

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The Reserve Banks and the Money Market

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CHAPTER I

A Changed Banking World

ABOUT twenty years ago the writer took part in a debate on the subject, "Resolved that the United States should adopt the Canadian banking system." When examined in cold blood the implications of such a proposal were startling. At that time there were in the United States some 18,000 separate independent banks, whereas in Canada there were only 34 banks, each with many branches. The adoption of the Canadian system here would have involved thousands of bank consolidations and the development of an altogether different technique of bank management, different not only from what we had in the United States, but different also from anything in the world because of the prodigious distances any branch system would have to cover. To reap the benefits of nation-wide branch banking, this country would have needed banks with their branches so far separated as the distances between London and Moscow, Constantinople and Paris, or Madrid and Vienna. It was a radical proposal the

adoption of which, if possible at all, could only have been effected over a long period of years and with doubtful results.

Yet the serious discussion of a topic of this sort was in keeping with the economic thought of that period. There was such dissatisfaction with the country's banking system that people were willing to consider drastic remedies. It was a time when almost every economic publication contained some reference to banking reform. Out of this discussion the Federal Reserve System was eventually born.

The Reserve System was a much less drastic remedy for banking evils than the adoption in this country of a system of branch banking such as has developed in Canada. It was a less drastic remedy than many of the proposals considered. It left undisturbed the American system of many independent banks, each operated by its own local officers and directors and free from distant control. The adoption of a system of regional Reserve Banks instead of one central bank preserved the American principle of local autonomy. In these and other respects the Reserve System was a less violent change than might easily have occurred if other suggestions had been followed.

Yet, looking at the matter in perspective, one can see that the introduction of the Federal Reserve System has brought great changes. In thirteen years the banking mechanism and banking processes have been vastly altered. Among the important changes in banking structure may be mentioned the following:

The country's bank reserves are largely centralized in twelve Federal Reserve Banks instead of being scattered among thousands of independent banks. Out of 4½ billion dollars of monetary gold in the country about 3 billions are held by the Federal Reserve Banks.

A new kind of paper money, the Federal Reserve note, has been put into circulation. At one time in 1920 the new currency constituted more than two-thirds of the total paper money in circulation, and now in 1927 amounts to more than one-third of the total.

The Reserve System has furnished a new means by which banks which need larger reserves or more currency may borrow them from the Reserve Banks, and thus our credit and currency system has been given elasticity.

The Federal Reserve System with its twelve Reserve Banks and twenty-four branch banks, and the office of the Federal Reserve Board in Washington, has provided a new mechanism for transferring funds from one part of the country to another.

The Reserve System has provided a new mechanism for collecting checks and drafts in all parts of the country.

A new credit instrument—the bankers' acceptance—has been put into use in an amount which now totals currently about 700 million dollars.

A new open market has been developed where short-term Treasury securities may be readily bought and sold.

A new method of handling government financial operations, through the Reserve System, has replaced the old independent Treasury.

Under the leadership of the Reserve System an American banking policy has become possible.

These changes and many others have altered the banking structure and removed many of the old landmarks of bank operations. For example, in the old days one of the best guides which the banker

could use for determining his lending policy, or the business man for judging credit conditions, was the report published each Saturday by the New York Clearing House. This showed the cash reserves of the New York Clearing House banks, compared with the amount of reserves these banks were required by law to keep in their vaults. When these banks showed a continued reduction in their surplus of actual reserves over legal requirements, or an occasional deficit, the banker or business man knew he should look for foul weather ahead. Today this report of surplus reserves has become of little significance because the reserve position of the banks depends largely on the amount of money which they are borrowing from the Federal Reserve Banks. The New York City banks have been partly superseded by the Reserve Banks as a last resort in time of trouble. The student of credit conditions has a new set of statistics to follow in the reports of the Federal Reserve System.

Another landmark to disappear has been the quotation of inland exchange rates. There is no longer a premium on Chicago funds or New York funds, because the Federal Reserve wire-transfer system has done away with the cost of moving funds about the country.

Still another change in the financial landscape appears in the movement of interest rates. In the old days the shrewd banker or business man adjusted his operations to take advantage of a characteristic seasonal swing in interest rates. This seasonal movement has now been largely ironed out, and the practice of banker or business man

has required a corresponding adjustment to new conditions.

The changes in American banking which have followed the introduction of the Reserve System have been blurred somewhat by the interruption of the war. Attention was focused on the dramatic aspects of the System's war service rather than on the permanent structure which grew more quietly and more steadily. Even now, well beyond the conclusion of the war, we are just beginning to realize the extent of the change which has occurred.

The general opinion clearly is that the new banking system is good. Frequent comments when the Federal Reserve System is mentioned are, "It is a wonderful institution," or, "I don't know what we should have done without the Federal Reserve." But when it comes to a precise description of what service the Federal Reserve System performs in the economic structure, it cannot fairly be said that there is general understanding of the ways in which our banking system has been altered and the way the present mechanism operates. In fact, the present tendency appears to be to ascribe rather too much virtue and power to the Federal Reserve System. Some appear to believe that the Federal Reserve System is or should be a cure-all for economic ills: that it should somehow completely stabilize commodity prices, prevent bank failures, suppress speculation, and eliminate the fluctuations of the business cycle.

It is not surprising that there should be some rather hazy and indefinite notions prevalent concerning the Federal Reserve System and its place in

the financial scheme. For, in the first place, the public does not come in contact with the Federal Reserve System. The Reserve Banks are bankers' banks and deal almost exclusively with the member banks and not with the public. To the general public the Reserve System is almost an abstract idea. In the second place, it takes time for institutions to become thoroughly imbedded in a civilization and to be thoroughly understood. The Reserve System is only thirteen years old and of these years almost none has been passed in a normal period. The years during which it has been possible to observe its operations under anything approaching normal conditions are certainly too few to justify final conclusions as to the changes in American banking which result from the presence of the System.

In any analysis of the significance of Federal Reserve operations there is, however, one important aid in the availability of more complete financial statistics than ever before existed in this country, or are available in any other country in the world. The Reserve System publishes a remarkably complete weekly report consisting of thirty-seven different items, as compared with a statement of about ten items which the Bank of England regularly makes public. Even more complete data concerning all forms of Federal Reserve operations are published by the Federal Reserve Board in the Federal Reserve *Bulletin* and by the several Federal Reserve Banks in their monthly reviews. The Reserve Board and Banks maintain careful daily records of many of their operations which form a basis for as minute

a study of the interplay of Reserve Bank activity and the money market as may be desired.

In addition the Reserve Board and Banks collect and publish banking statistics each week relating to the operations of about 700 of the larger member banks in principal cities, whose total resources equal about 60 per cent of the resources of all member banks and a little less than 50 per cent of the total banking resources of the United States. Through their economic services the Reserve Banks and other agencies make available a wealth of material with regard to money rates and commercial and industrial activity on a scale which is not approached by any other country and which is far ahead of anything previously possessed in this country.

Because of the existence of this large body of reliable data it should now be possible, even with only a few years of experience of the operations of the Reserve System, at least to describe in quantitative terms some of the relations between Reserve Bank operations and the money market and perhaps to draw some tentative conclusions as to the effects of these operations on American business and finance. The following chapters are an attempt in this direction.

SUMMARY

1. While the Reserve System was a less drastic remedy for banking evils than many other proposals, its operations have made a great change in American banking.
2. Such a familiar landmark as the quotation on

inland exchange has disappeared; the meaning of the New York Clearing House statement has been quite changed; and the seasonal movement of money rates has been altered.

3. Because the Reserve System is remote from daily experience, public opinion about it, while approving, is comparatively uninformed.
4. Thirteen years under abnormal conditions are too short a period to pass final judgment on the accomplishments of the System.
5. With the aid of the remarkably comprehensive statistics which are available it is possible to describe quantitatively some of the relations of the Reserve Banks and the money market, and to draw some tentative and limited conclusions as to results.

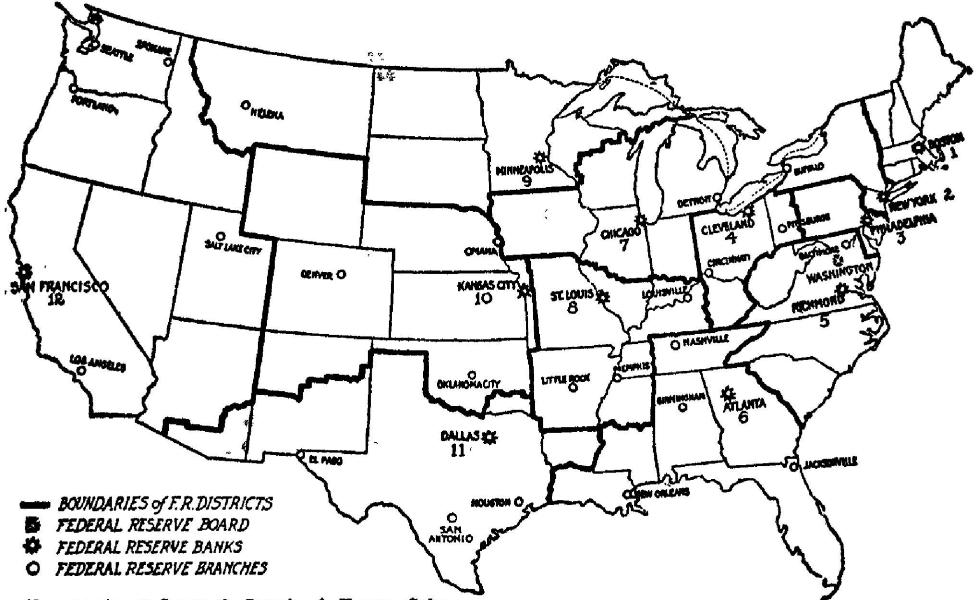
CHAPTER II

Structure and Growth of the Reserve System

THE Federal Reserve System is so remote from the general public that it seems desirable to preface any discussion of what the System does with a brief account of its structure and growth.

There are twelve Reserve Banks in twelve important cities of the country and each one of these banks is now housed in a building of its own. In addition there are twenty-four branches and two agencies, many of these in their own buildings. Housed in the Treasury Building in Washington is the Federal Reserve Board, the governmental body which supervises the operations of the System. The total staff of the whole System is over 10,000 persons. The locations of the different offices are shown in the accompanying map.

The Federal Reserve Board.—In the congressional discussions which preceded the passage of the Federal Reserve Act one of the proposals given serious consideration provided for the establishment of a single central bank of issue, rather than twelve Reserve Banks. When the decision was reached for a number of banks of issue rather than one, it was essential to provide a mechanism for coordinating their activities. It would be an impossible situation to have completely independent Reserve Banks in different parts of the country acting upon differ-



Also agencies at Savannah Georgia, & Havana Cuba

MAP 1—FEDERAL RESERVE OFFICES.

ent policies, maintaining different standards in making loans, and perhaps competing with one another. It was essential to have a central coordinating body with adequate powers to weld the separate Reserve Banks into a system. The Federal Reserve Board is this coordinating body. The Board consists of eight members, two of whom are the Secretary of the Treasury and the Comptroller of the Currency, ex officio, and the other six are appointed by the President for ten-year terms with the advice and consent of the Senate.

The Board prescribes regulations governing methods and procedure of Federal Reserve operations in all those matters where uniformity is necessary. Discount rates are fixed by the several Federal Reserve Banks subject to "review and determination of the Federal Reserve Board." The Board has certain limited operating functions in serving as a central clearing house for check collections and wire transfers. It has a force of examiners who examine the Reserve Banks periodically, and it maintains a complete statistical record and analysis of Federal Reserve operations, much of which is made public through the Board's weekly press statements, monthly bulletin, and the annual report to Congress. In addition to these and a number of other specific functions, the Board exercises general supervision over the operations of the Reserve Banks.

Not Government Banks.—The twelve Federal Reserve Banks, although supervised by the Federal Reserve Board, are not themselves government institutions, nor yet are they private institutions in the same sense as is the ordinary commercial bank.

Their corporate stock is owned wholly by member banks of the districts in which they are located, but under the terms of the law their policies are directed towards the public welfare and not private gain, and the dividends on their stock are limited to 6 per cent. They may well be termed semi-governmental institutions.

The public nature of the Reserve Banks is indicated by the character of their directorate. Three of the nine directors of each bank are appointed by the Federal Reserve Board and one of these appointees is chairman of the board of directors. The other six directors are elected by the banks in the district which are member banks—that is, which are stock-owners in the Reserve Bank. The public character of the Reserve Bank's business is further emphasized by the provision that none of the three appointive members of the board may be an active banker, except the chairman, who gives all his time to the Reserve Bank. Moreover, of the six elective members of the board three must be actively engaged in commerce, agriculture, or industry in the district. On the board of each of the banks business men are in the majority.

Membership in the System.—The members of the Federal Reserve System comprise over 9,000 national and state banks and trust companies—approximately one-third of all the incorporated banks in the country. This proportion of about one-third does not hold uniformly in all the states, but varies from about 12 per cent to as high as 80 per cent. In point of resources, the member banks represent more than two-thirds of the banking strength of the

country. This general relationship of the number and strength of member banks to all banks in the country is illustrated in Diagram 1.

Under the Federal Reserve Act all national banks are members of the Federal Reserve System; and state banks and trust companies may apply for admission under certain eligibility conditions. State institutions may also withdraw from the System.

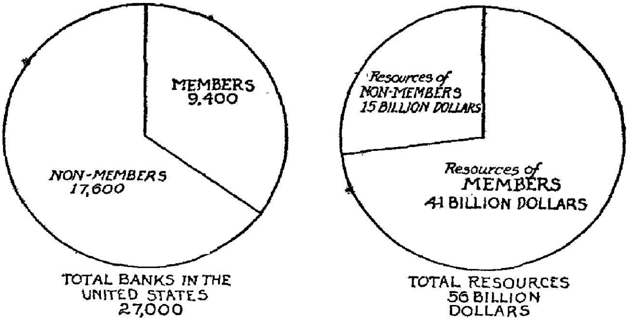


DIAGRAM 1—MEMBER BANKS WERE ABOUT ⅓ OF ALL BANKS IN NUMBER BUT MORE THAN ⅔ IN BANKING POWER ON JUNE 30, 1926.
(Mutual Savings Banks and Private Banks excluded.)

The following table shows the number of member banks, both national and state, and their resources on June 30 of each year since 1915.

The greatest growth in membership was during and following the war period, when banks needed most urgently the help of the Reserve System and when it became a patriotic duty to join the Reserve System as a means of strengthening the country's banking structure. The war thus stimulated a rapid growth in state bank membership, which would probably have taken many more years under ordi-

TABLE 1.—NUMBER AND RESOURCES OF MEMBERS OF THE FEDERAL RESERVE SYSTEM

Year (as of June 30)	Number of Banks			Resources (in millions)		
	National	State	Total	National	State	Total
1915	7,598	17	7,615	$11,790	$ 97	$11,887
1916	7,572	34	7,606	13,920	307	14,227
1917	7,600	53	7,653	16,282	756	17,038
1918	7,700	513	8,213	18,347	6,104	24,451
1919	7,780	1,042	8,822	21,228	8,628	29,856
1920	8,025	1,374	9,399	23,402	10,351	33,753
1921	8,150	1,595	9,745	20,510	10,426	30,936
1922	8,244	1,648	9,892	20,698	11,026	31,724
1923	8,236	1,620	9,856	21,502	12,293	33,795
1924	8,080	1,570	9,650	22,555	13,222	35,777
1925	8,066	1,472	9,538	24,339	14,766	39,105
1926	7,972	1,403	9,375	25,302	15,543	40,845

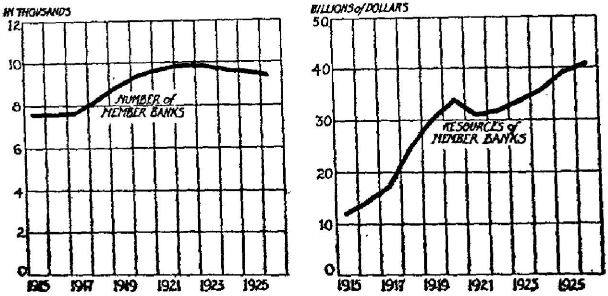


DIAGRAM 2—THE NUMBER OF MEMBER BANKS HAS DECREASED SLIGHTLY IN RECENT YEARS DUE LARGELY TO BANK MERGERS AND LIQUIDATIONS; BUT RESOURCES OF MEMBERS HAVE CONTINUED TO INCREASE.

nary circumstances. While the state bank membership is not now large in point of numbers, this membership includes most of the large state institutions, and it may be noted that resources of state bank members are more than half as large as those of national bank members.

Some slight decreases in membership in recent years are due largely to bank mergers and liquidations. Membership has more than held its own relative to the country's total banking resources. The causes of changes in membership since 1919 are shown in the following table.

TABLE 2.—SUMMARY OF CHANGES IN MEMBERSHIP IN THE FEDERAL RESERVE SYSTEM 1919 THROUGH 1926

(Number of banks)

	1919	1920	1921	1922	1923	1924	1925	1926
Active member banks at first of year.....	8,692	9,066	9,606	9,779	9,859	9,774	9,587	9,489
Banks joining the System..............	518	679	384	301	228	168	237	174
Banks withdrawing from the System[1]	69	53	41	41	78	75	100	125
Net increase from banks joining and withdrawing.....	449	626	343	260	150	93	137	49
Banks lost to membership through mergers between member banks, suspensions, etc.	75	86	170	180	235	280	235	278
Net change for the year............	+374	+540	+173	+80	−85	−187	−98	−229
Active member banks at end of year...	9,066	9,606	9,779	9,859	9,774	9,587	9,489	9,260

[1] Includes withdrawals which were incidental to the absorption of banks by existing non-member banks.

Membership in Various States.—The variations among the different states in the proportion that resources of member banks bear to the total re-

sources of all banks appear in Diagram 3. The percentages are based upon figures as of June 30, 1926 taken from the Federal Reserve Bulletin and the report of the Comptroller of the Currency.

The variations between states in the proportion of bank resources which are in the Federal Reserve System reflect to a considerable extent the different banking laws of the various states. Some of them prescribe such low reserves for state banks that the banks would lose money by becoming members of the Federal Reserve System, and there are other difficulties in the state laws which restrain banks from becoming members. Another reason for differences between states is found in the size of banks. Banks have to be of certain size to be eligible for membership, and in general the states with large cities and large banks tend to show larger percentages of membership.

What Membership Means.—State institutions applying for membership are ordinarily required to have at least the minimum paid-up capital required of newly established national banks. For example, the minimum capital required of a national bank established in a rural community is $25,000, and state banks having a capital of less than that are not now eligible for membership, except that under an amendment of the Federal Reserve Act, effective March 4, 1923, a state bank may be admitted to membership with a capital of not less than 60 per cent of the amount sufficient to entitle it to become a member bank, provided it shall increase its capital stock to the required minimum within five years after its admission to membership. How-

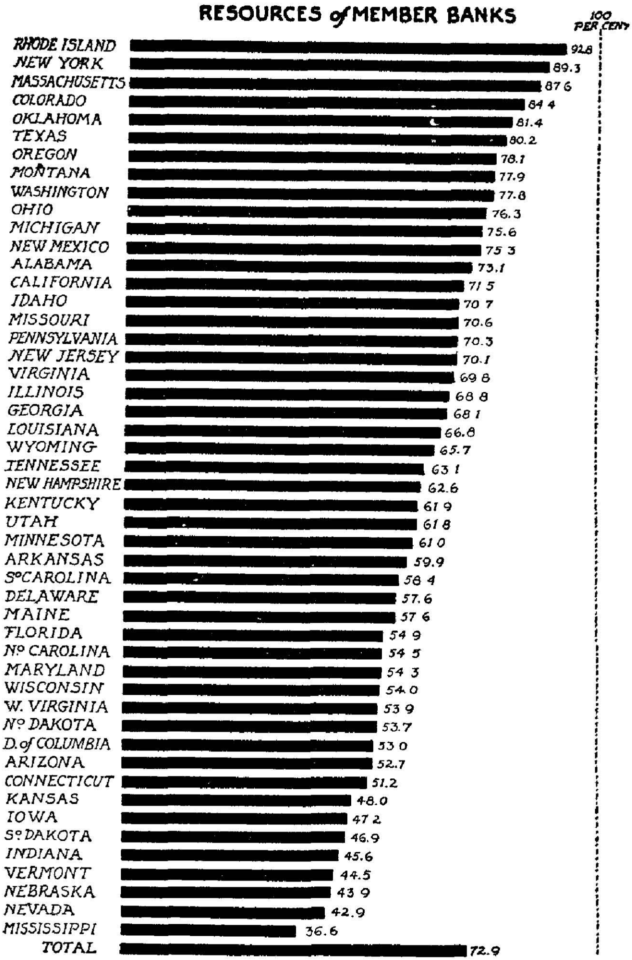


DIAGRAM 3—RESOURCES OF MEMBER BANKS RANGE FROM 93 PER CENT OF ALL BANK RESOURCES IN RHODE ISLAND TO 37 PER CENT IN MISSISSIPPI. (Mutual Savings Banks and Private Banks excluded.)

ever, few banks have taken advantage of this amendment. In many agricultural states a large number of rural banks having small capital are ineligible for membership and so are without direct access to the Federal Reserve Banks. There are more than 10,000 state banks and trust companies which are eligible but are not members.

In all cases state institutions applying for membership are subject to examination by the Federal Reserve Bank before admission, so that their condition and policies may be ascertained.

A member bank must subscribe for stock in its Federal Reserve Bank in the amount of 6 per cent of its own capital and surplus; thus far the member banks have been called upon to pay in only 50 per cent of the amount of stock subscribed for. As a member bank's capital and surplus increase it must increase its ownership of stock in the Federal Reserve Bank. The member banks are the sole owners of Reserve Bank stock. This stock is not transferable and so cannot be sold, thus preventing a concentration of control of the Federal Reserve Banks. If a bank liquidates or retires from the System, the shares held by it are canceled, and the bank receives back what it paid in. Dividends are cumulative and have been paid at the rate of 6 per cent annually upon the paid-in capital.

A member bank keeps all of its legal reserves on deposit with its Reserve Bank. These reserves form the principal volume of deposits of the Reserve Banks. They are in fixed proportion to the amount of deposits of the member banks, on the average 7½ per cent.

To all member banks are available the various services provided by the Federal Reserve Banks. These include loans to members, the supplying of currency, the collection of checks, the transfer of funds by wire, and other services. In fact, the Reserve Banks perform for the banks of the country much the same service that the banks themselves perform for their customers. They are in this sense bankers' banks, although they are not designed to serve simply the banking interest, but rather to serve business through the member banks.

Size of the System's Operations.—Naturally the operations of the Reserve Banks are much larger in volume than the operations of commercial banks. Their customers are not individuals, but banks, each with its own thousands of customers. The money which these customers use, the government securities they buy, many of the checks they draw, and a part of the commercial paper upon which they borrow pass through the Reserve Banks. These banks, therefore, handle money, checks, credit instruments, and securities not in retail but in wholesale volume. In 1926, for example, the twelve Reserve Banks received and counted between 4 and 5 billion separate pieces of currency and coin with a value of more than 13 billion dollars; they handled for collection 800 million checks valued at about 275 billion dollars; they issued, redeemed, or exchanged more than 4½ million United States certificates, notes, or bonds valued at about 5 billion dollars.

The growth in the volume of operations of the Reserve Banks is illustrated in Diagram 4. In a number of these operations the volume is a reflec-

tion of changing economic conditions. The gold reserves reflect largely the flow of gold to or from this country. The total loans and investments reflect the country's demands for credit, and reached their highest point some months after the peak of

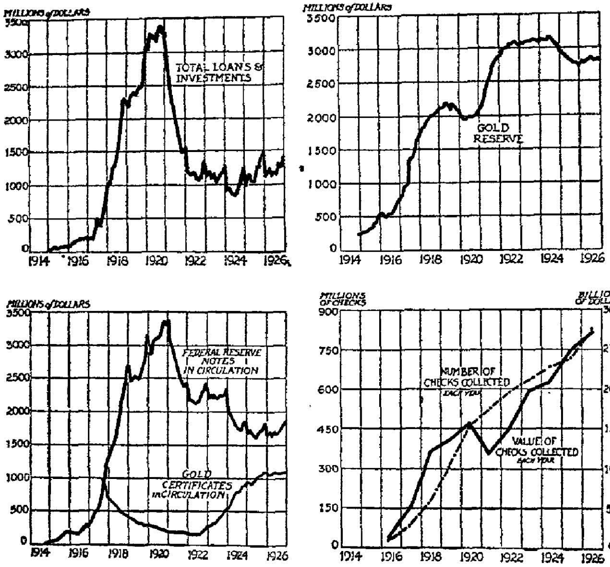


DIAGRAM 4—SOME OF THE SYSTEM'S OPERATING STATISTICS.

high prices in 1920. Check settlements, particularly since prices have become more stable, are a reflection of the steady growth in the country's business. Over a long term of years experience has shown that the volume of business in this country tends to increase at a rate of between three and four per cent a year, and banking operations have

grown at an even more rapid rate. The business of the Reserve Banks is so closely related to the country's banking operations that it may be expected to grow at a somewhat corresponding rate. Experience in the more normal years since 1921 appears to indicate that this is in fact taking place.

Disposition of Earnings.—The Federal Reserve Banks are organized and operated not for the purpose of making profits, but, as the title of the Federal Reserve Act states, "to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes." Accordingly, the provisions of the Federal Reserve Act dealing with earnings are so framed as to make the public welfare the sole consideration determining its policy. The Act provides that the member banks shall be entitled to a 6 per cent annual dividend on the paid-in capital stock. Earnings beyond expenses and dividends are to be paid into a surplus fund until that fund equals the subscribed capital of the bank, and beyond that amount 10 per cent of net earnings in excess of expenses and dividends is paid each year into the surplus fund. All remaining net earnings are paid to the United States Government as a franchise tax which takes the place of the tax on note issues which governments customarily levy when they delegate the note-issuing power to a bank of issue. These provisions are designed to remove the profit-making motive from Federal Reserve policy.

The earnings of the banks since their inception have responded directly to their use as seasonal

or emergency institutions. The heaviest earnings reflected the large borrowings of the war and post-war years. Under more normal conditions the banks have earned little, if any, beyond their expenses and dividends. At times when earnings have been particularly heavy the government has received as a franchise tax a large portion of those earnings.

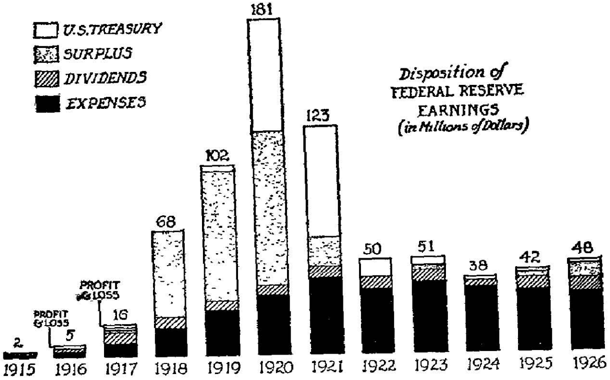


DIAGRAM 5—THE DISPOSITION OF GROSS EARNINGS OF ALL FEDERAL RESERVE BANKS BY YEARS. IN 12 YEARS A SURPLUS OF $229,000,000 HAS BEEN BUILT UP AND $140,000,000 HAS BEEN PAID THE U. S. TREASURY AS A FRANCHISE TAX.

Since the beginning the Reserve Banks have paid $140,000,000 to the Treasury as franchise tax.

The earnings of the System and their disposition since the Reserve Banks began operations are shown in Diagram 5.

SUMMARY

1. The Reserve System consists of a Federal Reserve Board, twelve Reserve Banks, and twenty-

four branches and two agencies with a total staff of over 10,000 persons.

2. The Reserve Board is a central supervisory body to coordinate the activities of the System.
3. There are over 9,000 member banks, one-third of the commercial banks in the country with over two-thirds of the resources.
4. The number of member banks has recently decreased slightly, due to mergers and liquidations, but the resources of members have continued to increase steadily and rapidly.
5. Member banks own all the capital stock of the Reserve Banks, keep their legal reserves with them, and benefit from many services the Reserve Banks provide.
6. The operations of the Reserve System are wholesale in character and reflect the volume and growth of the country's vast banking operations.
7. The law is designed to remove the profit-making motive from Federal Reserve policy, and profits are incidental to public service. Dividends are limited to 6 per cent, and profits beyond expenses, dividends, and a reasonable surplus are turned over to the United States Treasury.

CHAPTER III

Changes in Bank Reserves and Their Use

FROM the first the banking system in this country has given expression to the American ideal of individuality and freedom. Almost any responsible group of people with a little capital could start a bank, and the result is about 27,000 incorporated independent banks compared with a score or two in most other countries. In the United Kingdom there are forty-six incorporated commercial banks of deposit and in Canada eleven; in France the banking business is largely in the hands of six credit companies, and in Germany largely in the hands of ten banks.

American laws on bank reserves have been a direct result of the large number of scattered banks. In most countries the kind and amount of reserves maintained by banks are matters of prudent banking practice, not of law. But in this country it was found necessary to set up rigid requirements as to the minimum reserve each kind of bank should carry, and enforce them by public inspection in order to secure some degree of strength and safety for our thousands of banks.

Defects of Old Scheme.—The consequence was that the gold and currency which represented the underlying banking reserves of the country were scattered about in the vaults of thousands of sepa-

rate banks. The reserves were also pyramided, made to do double duty, by the practice of counting bank balances as legal reserves. While this state of affairs may have conformed with traditions of independence, the results were not satisfactory. The difficulties with bank reserves were analogous to an experience a European city is reported to have had at one time with cabs. The city fathers, as the story goes, were greatly troubled because there were frequently not sufficient cabs available at cab stands. They, therefore, passed an ordinance that each cab stand should have at least one cab waiting all the time. The result of this ordinance was, of course, to accentuate the difficulty. Laws as to bank reserves had a corresponding result. Each bank was required at all times to maintain a legal minimum reserve. This plan was satisfactory and desirable in times when credit was ample, but in periods of stringency it locked up the reserves which in emergencies should have been put to use. A few courageous bankers at such times paid out their reserves freely to meet unusual needs, but many bankers, following the more natural instinct of fear for their safety, locked their reserves in their vaults. The law encouraged, and strictly speaking required, just that procedure, and there was no regular method by which reserves could be put to work.

The Federal Reserve System is a method for putting bank reserves to work in busy seasons and emergencies. The first step was to remove a part of the reserves from the scattered vaults of individual banks and centralize them in the vaults of the Reserve Banks—custodians with no selfish ends to

serve and prepared to administer the reserves in the public interest. The second step was to set up a method for using reserves in emergencies and busy seasons either by paying out the reserves themselves, or, more commonly, by building a larger credit structure upon them.

The Insurance Principle.—The shift of required reserves from the vaults of member banks to the vaults of the Federal Reserve Banks was not simply a change in physical location. It effected a change in the character and effectiveness of the reserves and enabled them to serve more adequately their original purposes.

A basal principle which gives greater effectiveness to reserves under the Federal Reserve System is the insurance principle of distributing the risk.

Suppose that you or I own a house. One of the dangers we constantly face is the danger of fire, and every prudent house owner makes some provision against this danger. There are various ways in which it could be done. One way would be to start a special bank deposit which we might call our fire insurance deposit. We would lay aside something in that account each month, so that in case the house were damaged by fire we should have something available towards repairing or rebuilding it. While this is a possible method of insurance, it is a ridiculous one, because we should never have sufficient funds to meet an emergency, and the method is too expensive.

What we actually do is enter a cooperative organization with thousands of other house owners, which we call a fire insurance company. Each one

of the house owners pays a small sum regularly to a central fund. There are enough house owners cooperating and enough small sums paid in to make a very large reserve fund, which is available to repair or rebuild the houses of any one or several of the cooperating house owners. The insurance principle here is simply that the risk of loss through fire is distributed over thousands of house owners.

This is somewhat the same principle as the Federal Reserve System. Under the old scheme of bank reserves, each bank set aside its own funds against emergencies. The result was that no single bank was able to set aside a sufficient sum to meet its needs in case of a real emergency. But under the Federal Reserve System the reserves of the cooperating banks are pooled and the emergency of any single member can be met, provided the member has not impaired his borrowing power by dishonest or imprudent banking methods. The strength of the combined reserves is so great that they can be drawn upon heavily at times of general need without fear of exhaustion. And there is the additional important consideration that when the reserves are pooled with the Reserve Banks they can be used without being paid out as they form the basis for issues of Federal Reserve notes or further extensions of credit.

Putting Reserves to Work.—Granted the strength of the pooled reserves and their power to serve the banks in emergencies, the second part of the problem was devising a scheme for putting some of the pooled reserves to work without flooding the market with funds and creating inflation.

The method devised was that banks might borrow from the Reserve Banks just as the customer borrows from the commercial bank. The safety and liquidity of loans to banks is guaranteed by the shortness of the time for which banks may borrow and the character of the collateral which banks are required to furnish as security for loans.

Loans to banks take two forms, rediscounts and advances. A bank may indorse and send to the Reserve Bank its customers' promissory notes representing actual commercial or agricultural transactions. The Reserve Banks will discount commercial paper of this sort with a maturity of ninety days or less, or, in the case of certain kinds of agricultural paper, nine months. This is called a discount or rediscount. Or a bank may give a Federal Reserve Bank its own promissory note payable in fifteen days and secured by commercial paper, or by United States Government bonds, notes, or certificates. This form of loan is known as an advance.

The Reserve Banks examine with great care all paper presented to them for rediscount or as collateral for an advance and see to it that the concerns whose paper is presented are in liquid condition. Otherwise the paper is not accepted. Member banks are required to file the statements of the makers of all paper presented for discount which is over $5,000 in value. The Reserve Banks maintain extensive credit files. The Federal Reserve Bank of New York alone, for example, has on file statements and other data concerning 50,000 to 60,000 individuals and business concerns. Similarly, the Reserve Banks study continuously the condition

of the member banks. They maintain staffs of bank examiners who from time to time examine member banks and still more frequently collaborate with Federal and state authorities in such examinations. With these provisions for safety, losses by the Reserve Banks have been negligible.

The problem of restraining member banks from borrowing too freely and so flooding the market with money is the most difficult problem which the Reserve Banks have to face. It is what is generally termed the problem of Federal Reserve policy. Briefly the general principle is that reserve funds should be used (either paid out or as a basis for credit) whenever they are genuinely needed, but should not be used beyond that need. The determination of what are genuine needs is a major problem. The principal method of restraining the use of reserve credit is through the price charged member banks on loans, called the discount rate. But these questions of policy are another and a broader question and will require a separate chapter.

Elasticity of Reserves.—Concerning the use of reserve funds just described it is important to note that the reserve funds themselves are not commonly withdrawn from the Reserve Banks. The member bank which borrows at a Reserve Bank receives a deposit credit at the Reserve Bank which counts as part of the reserves of the member bank. If the bank needs currency it usually draws Federal Reserve notes. Save under exceptional circumstances the only two cases in which the gold reserves of the Reserve Banks are actually withdrawn are when member banks withdraw gold for export or

gold certificates for circulation. Ordinarily, borrowing by member banks simply increases the deposits or the note circulation of the Reserve Banks. Since these deposits require only 35 per cent reserves and notes only 40 per cent gold reserves, a Reserve Bank can in an emergency lend to its member banks nearly three times its actual reserves, unless gold is required for export or circulation.

This principle of expansion or elasticity of reserve funds is one of the two basic principles of bank reserves under the Reserve System, to be bracketed with the insurance principle of distributing the risk by concentrating the funds. These two principles give the Reserve System its strength.

Economy in Reserves.—While the concentration and elasticity of reserves, making them more serviceable in busy seasons and emergencies, are the most important changes in bank reserves resulting from the establishment of the Reserve System, there are other interesting changes, and one of these is a reduction in the amount of reserves. Because existing reserves have become more mobile, more usable, and more efficient, it has been possible to reduce the amount of reserves. Recognizing this principle, the Federal Reserve Act reduced the legal reserve requirements of member banks and left more to the discretion of the individual banker. Then in 1917 an amendment of the Federal Reserve Act reduced reserves still further.

The precise changes in the legal reserves against demand deposits of national banks may be summarized in tabular form as follows, for the period from 1887 to the inauguration of the Reserve Sys-

tem, for the first three years of its operation, and for the years since the 1917 amendment.

TABLE 3.—PERCENTAGE OF RESERVES REQUIRED ON DEMAND DEPOSITS

	Central Reserve City Banks	Reserve City Banks	Country Banks
National Bank Act Amended 1887			
Cash in vault (minimum)	25	12.5	6
With approved agents....	0	12.5	9
Total................	25	25	15
Federal Reserve Act Effective 1914			
Cash in vault (minimum)	6	5	4
With Federal Reserve Banks (minimum).....	7	6	5
In vault or with Federal Reserve Banks*.......	5	4	3
Total................	18	15	12
Amendment of 1917			
All in Federal Reserve Banks................	13	10	7

* For thirty-six months from 1914 reserve city and country banks had the option of carrying these amounts with approved agents.

The reduction in reserve requirements for time deposits, those deposits, consisting largely of savings

accounts, on which the bank could require thirty days' notice before withdrawal, was still greater. Under the National Bank Act both time and demand deposits carried the same reserve requirements. In 1914 the reserve against time deposits was reduced to 5 per cent for all member banks, and in 1917 to 3 per cent.

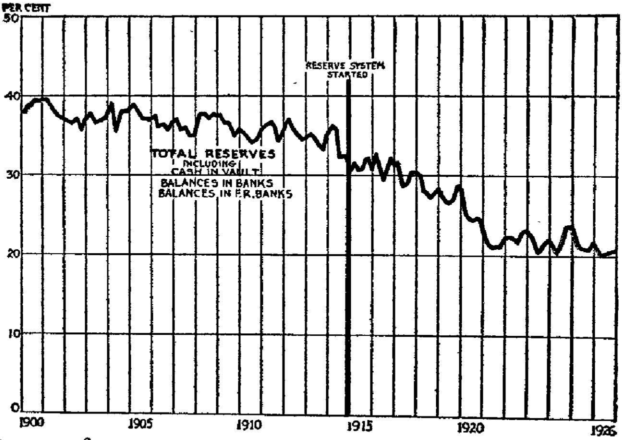


DIAGRAM 6—WORKING RESERVES OF NATIONAL BANKS, IN PERCENTAGE OF DEPOSITS, HAVE BEEN MUCH REDUCED UNDER THE FEDERAL RESERVE SYSTEM.

The essential facts about these changes in reserves are that the legally required reserves have been reduced to a minimum, all to be held in the Reserve Banks, and that no requirements are prescribed for cash in vault or balances with banks, which are no longer counted as reserves, and the amounts of which are left wholly to the discretion of the member banks.

Since the Federal Reserve Act was enacted in 1914, banks have in one way or another reduced steadily the amount of discretionary reserves carried in excess of the legally prescribed minimum. The figures for all national banks for the dates of Comptroller's calls are shown in Diagrams 6 and 7.

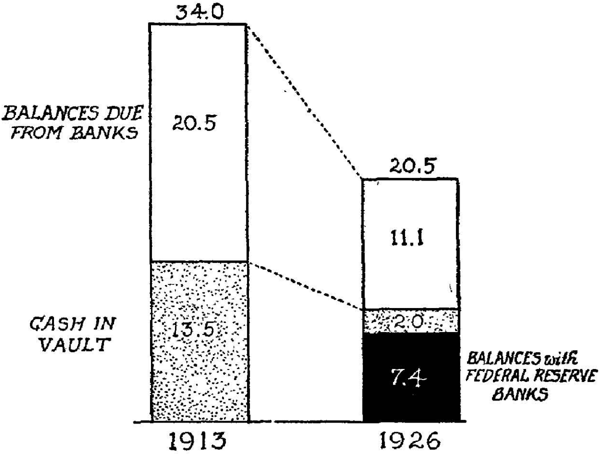


DIAGRAM 7—NATURE OF THE REDUCTION SINCE 1913 IN THE WORKING RESERVES OF NATIONAL BANKS. (In Percentage of Deposits.)

The aggregate of working reserves, which we may think of as composed of cash in vault, balances due from banks, and balances due from Reserve Banks, has been reduced from 34 per cent of total time and demand deposits in 1913 to 20.5 per cent in 1926. The total of cash in vault and reserves with Federal Reserve Banks is now 9.4 per cent of deposits, as compared with 13½ per cent of cash in vault alone in 1913.

The first important fact about this reduction in reserves is that it has released some funds for investment or loans, with corresponding benefit to the earnings of member banks. A comparison of types of banks, which is given in Appendix A, shows that central reserve city banks have gained most from the release of cash, but this gain has been partly offset by the loss of reserve deposits from out-of-town banks. Country banks have had little cash released, but have been able to reduce the balances maintained with city correspondents. Reserve city banks have gained moderately in both ways. All groups have gained through a release of funds for profitable employment.

Generally, any such release of reserve funds tends to result in expansion of bank credit, which may be the forerunner of price inflation. Fortunately, the principal change in reserve requirements occurred during the war, when credit expansion was almost inevitable and took place in every country of the civilized world. The readjustment in our reserves probably made our credit expansion more orderly than it would otherwise have been.

By a curious turn in events this reduction of the ratio of reserves to deposits in the commercial banks has been practically offset by a flood of gold imports which have been absorbed by the Federal Reserve Banks, and have built up an additional reserve back of the war-expanded deposits. As a consequence, the ratio of the country's total gold stock to bank deposits is now nearly as high as before the war. The figures follow.

PERCENTAGE OF MONETARY GOLD IN COUNTRY TO TOTAL INDIVIDUAL BANK DEPOSITS

1913	10.3
1920	8.4
1923	10.0
1926	9.5

The absorption of gold imports by the Reserve System without an accompanying credit expansion and price inflation has been an apparent riddle, with actually a simple explanation which will be discussed later.

A future contingency which must always be borne in mind in discussing bank reserves in this country is the possibility of exports of part of this large store of gold. In view of this possibility and in view of the considerable reduction in bank reserves in relation to deposits which has resulted from thirteen years of operation under the Federal Reserve Act—a reduction in fact probably greater than the framers of the Act or the 1917 amendment estimated—any proposals for further reductions should be carefully weighed.

Reserves in Other Countries.—In this connection it is interesting to compare the amount of reserves carried by banks in this country with the amounts currently carried by banks in other countries. It is, of course, difficult to secure figures which are strictly comparable, partly because they are affected by the particular days on which reports are made, but the following table was compiled in 1925 and 1926 from the best available data. The reserve figure shown for each country is the percentage of cash, plus balances with banks of issue, to total

deposits as nearly as they can be determined. In view of different banking practices in different countries, it is remarkable how nearly uniform are the percentages of reserve carried.

	Typical Reserve
United States member banks	9.5
Ten London clearing banks	11.5
Four French credit companies	11.5
Swiss private banks	8.0
Chartered banks of Canada	11.0

Encouragement of Savings Deposits.—Part of the reduction in reserves shown in Diagram 6 was due to changed reserves on time or savings deposits and to a large increase in such deposits. Before 1914 as large reserves were required on time deposits as on demand. By the Federal Reserve Act, as already indicated, the reserve on time deposits was lowered to 5 per cent, and by amendment in 1917 to 3 per cent for all member banks.

There has followed a remarkable change in the character of business done by national banks. The amount of time deposits in 1914 was a little over 1 billion, but by 1926 was over 6 billion dollars. Time deposits increased from 17 per cent of the total individual deposits of national banks to 37 per cent.

Just what these largely increased time deposits represent is a much-debated question. Do they represent simply a reclassification of deposits previously treated as demand deposits? Do they represent business which would otherwise have gone to the savings banks? Or are they new savings deposits stimulated by the offering of more convenient sav-

ings facilities and by extensive advertising? There is no way of answering these questions finally. Some light is shed on the problem by a comparison of the growth of time deposits in all commercial banks and deposits in mutual savings banks. The figures are shown in the following diagram and table.

We may summarize these findings as follows:

1 Despite war changes and more widespread buying of government and other investment securi-

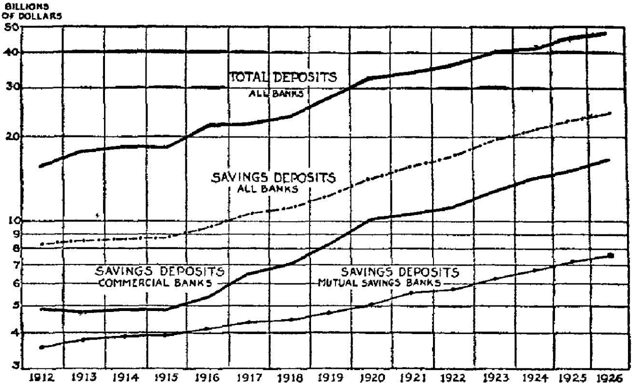


DIAGRAM 8—SAVINGS DEPOSITS HAVE KEPT PACE WITH TOTAL BANK DEPOSITS IN THE UNITED STATES DUE PRINCIPALLY TO RAPID INCREASES IN SAVINGS DEPOSITS IN COMMERCIAL BANKS.

ties, total savings deposits, including time deposits, have kept pace with the rapid growth of total bank deposits.

2. Savings deposits in commercial banks have grown at a more rapid rate than deposits of mutual savings banks.

3. The writer's tentative conclusion from these

TABLE 4.—GROWTH OF SAVINGS DEPOSITS RELATIVE TO ALL DEPOSITS—ALL BANKS IN THE U. S.

(In millions of dollars)

Year	Savings Deposits			Total Individual Deposits	Per Cent of Savings and other Time Deposits to Total Individual Deposits
	Mutual Savings Banks	All Commercial Banks (Time deposits)	Total		
1911	3,459	4,504	7,963	15,604	51
1912	3,609	4,795	8,404	16,742	50
1913	3,812	4,736	8,548	18,122	47
1914	3,910	4,802	8,712	18,891	46
1915	3,945	4,862	8,807	18,674	47
1916	4,102	5,357	9,459	22,065	43
1917	4,339	6,537	10,876	22,831	47
1918	4,382	7,153	11,535	24,518	47
1919	4,732	8,308	13,040	28,449	46
1920	5,058	10,256	15,314	32,361	47
1921	5,568	10,933	16,501	34,233	48
1922	5,818	11,761	17,579	36,336	48
1923	6,273	13,454	19,727	40,491	49
1924	6,693	14,496	21,189	41,064	51
1925	7,152	15,982	23,134	45,464	51
1926	7,525	17,171	24,696	47,472	52

Source: Report of the Savings Bank Division, American Bankers Association.

figures and other evidence is that time deposits in commercial banks are to a considerable extent genuine savings deposits; that the convenient facilities

and vigorous advertising campaigns of these banks have brought out considerable new savings. There are, however, undoubtedly large time deposits which represent transfers from demand deposits of corporations and other funds not needed for immediate use.

The recent growth of time deposits raises the further important questions as to whether reserve requirements are adequate, and how the growth of time deposits is changing the character of the business of commercial banks. A commercial bank which finds itself for the first time holding a large amount of time deposits may need a complete overhauling of its loan and investment policy.

The protection of time depositors is a part of the problem. In case of a run on a commercial bank, the demand deposits might conceivably be withdrawn by check through the clearing house and the bank's assets exhausted, while the time depositors stood in line at the tellers' windows or were perhaps required to wait thirty or sixty days. The combining of commercial and savings business on a large scale in one institution raises a number of such questions, to which careful bankers are now giving much thought.

The Changes Wrought.—The Federal Reserve Act, in its revision of bank reserves, has opened the way for many changes in banking practice. Some of these changes are now becoming apparent: a gradual reduction in cash in vault; the growth of savings deposits in many banks to an equal place with demand deposits. Other changes may well be going on under the surface, changes in investment

policy, changes in the amount and kind of secondary reserves maintained, and many others.

But the change of supreme importance which has made possible these other changes is the pooling of the reserves of member banks in cooperatively governed institutions, not organized for profit, but devoted to the public service. This coordination of banking power has given new strength and stability to the banking system.

SUMMARY

1. Before the Federal Reserve System bank reserves were scattered among thousands of individual banks and our reserve laws were so inflexible that reserves could not be used in emergencies.
2. The Reserve System made two great changes in reserves:
   - A. It concentrated the reserves and made them mobile and usable.
   - B. It provided a plan for credit expansion based upon these reserves.
3. Concentration and greater efficiency of reserves have made possible a large reduction in the amount each member bank is required to maintain.
4. Lower reserve requirements on time or savings deposits have been followed by rapid increases in these deposits in commercial banks, with a consequent change in the character of the business of these banks.

CHAPTER IV

Changes in the Currency

THE changes which the inauguration of the Reserve System has brought about in the country's currency may be summarized under three headings. This country has—

1. A new kind of currency.
2. A new storage place for reserve currency.
3. A new mechanism for supplying currency.

As a consequence of these changes there have come about important differences in what is termed "elasticity" of the currency, and there have also been effected economies in handling it.

A New Kind of Currency.—The Federal Reserve note constitutes the principal physical point of contact between the man in the street and the Federal Reserve System. For almost every adult person, almost every day, handles Federal Reserve notes. They constitute between one-third and one-half of the total amount of paper money in circulation in the United States, and at one time in 1920 they were more than two-thirds of the total.

Diagram 9 shows the make-up of the actual circulation of paper money in the United States (outside of the Treasury and the Reserve Banks) in 1914, and more recently. The increase in currency which the war and high world prices made necessary was provided almost wholly by issues of Fed-

eral Reserve notes. War wages and war prices were largely paid with this new currency, and now that more normal conditions have returned the Federal Reserve note remains the largest single element in the currency system.

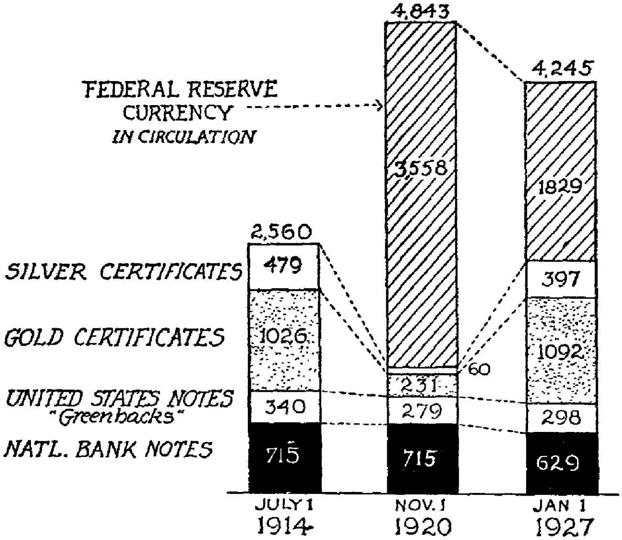


DIAGRAM 9—MILLIONS OF DOLLARS OF PAPER MONEY IN CIRCULATION IN THE UNITED STATES. THE FEDERAL RESERVE SYSTEM HAS PROVIDED THE NECESSARY ELASTICITY.

The Federal Reserve note was designed, in both its nature and method of issue, to provide currency expansion in emergencies. By its nature the Federal Reserve note is directly related to the trade activity which makes its issuance necessary, for it may be issued partly against the security of commercial paper.

Prior to the establishment of the Federal Reserve System there were in general use four kinds of paper money, all of which are still issued: first, gold certificates, secured dollar for dollar by gold held in the Treasury of the United States, and susceptible of being increased or decreased only as the volume of gold in the Treasury was increased or decreased; second, silver certificates, secured dollar for dollar by coined silver, the amount of which is limited by law; third, United States notes, the greenbacks of the Civil War, which were originally secured by nothing but the promise of the government to pay, but are now secured by gold to the amount of about 50 per cent of the total in circulation; the amount of these in circulation is also limited by statute to $346,000,000; fourth, national bank notes, issued by the national banks of the country and secured by United States Government bonds, which bear low rates of interest but carry the privilege to the bank holding them of issuing currency. For purposes of redemption each national bank is obliged to maintain a fund of lawful money in Washington amounting to 5 per cent of its notes in circulation. The amount of national bank note circulation is limited to the amount of bonds carrying the circulation privilege and for some years past has been close to the possible maximum.

It will be noted that, although these four kinds of paper currency are interchangeable dollar for dollar one with another, the security behind them is in some cases 100 per cent metallic and in other cases mainly government obligations; also that the amount of the total circulation made up of these

forms of currency was so fixed that it could neither be decreased readily in slack seasons and dull years, nor be increased readily in busy seasons and periods of emergency.

The Federal Reserve Act in prescribing the security behind Federal Reserve notes introduced a new principle into our currency system. It specified a security which is sound and at the same time increases and decreases with the business and agricultural needs of the country when it provided that, apart from a minimum gold reserve, Federal Reserve notes might be secured by short-term promissory notes representing industrial, commercial, and agricultural transactions, or bankers' acceptances.

The paper used as security represents agricultural products or other goods in the process of production, or in movement from producer to retailer, in process of export or import, or on the shelves of retailer or wholesaler awaiting sale. The paper must bear the indorsement of a member bank and its maximum maturity at the time of rediscount is ninety days, except in the case of agricultural paper, which may run for nine months. A war-time amendment of the Reserve Act also provided that fifteen-day collateral notes of member banks secured by government obligations or eligible paper might be accepted as security for Reserve note issues. The acceptance of this kind of paper as collateral was essential in the war, and at present it offers the most convenient form for short-time member bank borrowing and usually represents business needs for funds as truly as paper having the form of a business obligation.

The use of the Federal Reserve note gives a possible power of currency expansion adequate for almost any conceivable emergency. In the latter part of 1920, for example, when currency in circulation was at its highest point, the Reserve Banks could still have issued an additional 800 million dollars of Federal Reserve notes before the reserve percentage for the System would have reached the legal minimum.

A New Storage Place for Reserve Currency.—While in a serious emergency the power of the Reserve Banks to issue notes secured in part by commercial paper is an important power, in recent years this power has been of less importance than the mechanism for storing and handling all kinds of currency. The gold holdings of the Reserve Banks have been so large that notes in circulation could be secured almost dollar for dollar with gold. The kind of collateral security for the currency has, therefore, been less important than the mechanism by which it goes into or returns from circulation.

In the old days the country's reserve supply of currency was stored in the vaults of individual banks and particularly in the vaults of the central reserve city banks of New York, Chicago, and St. Louis. As was shown in a previous chapter, "cash in vault" of all national banks amounted to 13.5 per cent of their deposits, whereas today it amounts to only 2 per cent. The cash, consisting of gold and currency, which constituted the legal reserves of the banks, has been shifted physically from the vaults of the individual banks to the vaults of the Reserve Banks. Bank reserves are thus no longer

in the form of "cash in vault," but in the form of "balances with the Federal Reserve Bank." Banks only carry enough currency in their own vaults and tills to meet the needs of their customers from day to day.

When a member bank needs more currency for any purpose it draws it from the Reserve Bank in just the same way as the ordinary bank customer draws money from his bank. A bank simply draws its check against its "balance with the Reserve Bank" and takes the proceeds in cash. If this operation brings its reserve below requirements the bank restores it by borrowing. Conversely, when a bank has a little more currency on hand than it needs to meet customers' needs, it returns the money to the Reserve Bank and gets a deposit credit for it, and repays any loan it may owe the Reserve Bank. Non-member banks follow somewhat the same procedure with their city correspondents, which in turn draw upon the Reserve Banks.

The first result of this change in location of the country's reserve cash is that the cash is centralized in the Reserve System instead of being scattered among thousands of individual bank vaults. This means that the cash is more readily available whenever there is an unusual need.

The second result of the concentration of reserve currency in the Reserve Banks, which also have the note-issuing power, is that the process of "extraction" of currency from the Reserve Bank in time of seasonal or emergency need is less painful than the operation used to be at times when currency cir-

culation could be increased only by withdrawing from individual banks their cash reserves.

Before the Federal Reserve System, bankers throughout the country who needed currency drew on New York or other centers, and when the need was past returned surplus funds to those centers. The banks in principal centers and particularly New York were the nearest approach to bankers' banks, and they planned as far as they could to keep enough margin of cash on hand to meet seasonal and emergency needs. This meant that at most times they had more cash than was needed and at other times less than was needed. The maintenance of these cash reserves on which the country might draw was an expensive procedure, for which the banks in the centers were paid by large bankers' balances maintained with them and by high interest rates at periods of greatest demand. In any considerable emergency the supply of cash was inadequate, because at such a time banks were naturally unwilling and were also forbidden by law to pay out their minimum legal reserves. Elasticity was limited and was obtained at a stiff price.

The Federal Reserve Act with its amendments placed the country's reserve cash in institutions not organized for profit which can afford to let cash lie idle in readiness for seasonal and emergency needs, and which have as well the note-issue privilege and are thus in a position to meet almost any need. The outside limit to paying out currency, in the absence of special action by the Federal Reserve Board, is the legal requirement that each Reserve Bank must have a gold reserve of 40 per cent against

Federal Reserve notes and 35 per cent gold or lawful money against deposits. Within this limit restraint on issues of currency by the Reserve Banks is found in the discount rate and other instruments of Federal Reserve policy.

A New Mechanism for Supplying Currency.—As indicated earlier the operation by which currency in the Reserve Banks is put to use is that when member banks need currency for their customers they draw it from the Reserve Bank. Their withdrawal of any considerable amount of currency usually reduces their balances at the Reserve Bank below their required reserve and they accordingly bring up their balances by borrowing from the Reserve Bank at its established discount rate. Conversely, whenever currency in circulation becomes larger than is required by the needs of business, it begins to return to the banks and they immediately utilize it to pay off indebtedness at the Reserve Banks, on which they are paying interest. Even if banks are not in debt at the Reserve Bank they return any surplus currency to the Reserve Bank, because a deposit in the Reserve Bank, against which checks may be drawn, is much more useful to them than currency in buying securities or otherwise employing their funds. Currency in the tills of a member bank earns nothing and does not count as reserve, but a balance at a Reserve Bank may be drawn against or counted as reserve.

It is important to note that there is a close relationship between the total amount of Federal Reserve credit in use and the amount of currency in circulation. The demand for currency is nor-

mally the principal reason for the putting in use of Federal Reserve credit. This relationship may be illustrated by Diagram 10, quoted from the Federal Reserve Bulletin for July, 1926. One line shows the total amount of money in circulation at the first of each month and the second line shows the total amount of Reserve Bank credit in use, in-

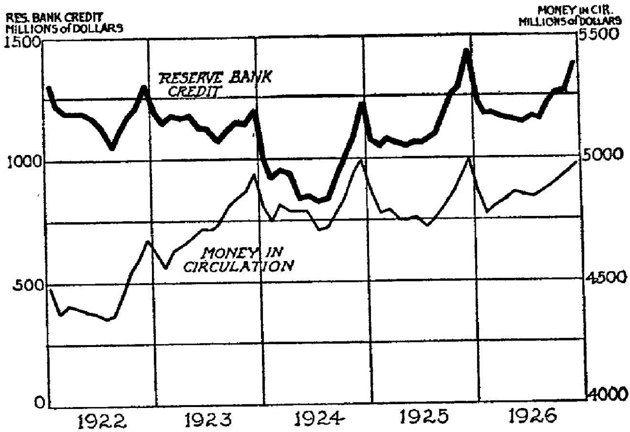


DIAGRAM 10—CURRENCY REQUIREMENTS ARE A MAJOR FACTOR IN CALLING RESERVE BANK CREDIT INTO USE.

cluding not only loans directly to member banks, but purchases of bills and securities by the Federal Reserve Banks as well.

The amount of Reserve Bank credit required from time to time is, of course, influenced by other factors than currency, including gold exports and imports and changes in requirements for bank reserves because of changes in bank deposits. In the period

from 1922 to the middle of 1924, for example, Reserve Bank credit was decreased because heavy gold imports were used by the banks of the country to repay loans at the Reserve Banks. But in normal times, when the gold movement is smaller, changes in currency are by far the most influential factor in calling forth additional Reserve Bank credit or in retiring it. To put the matter in its simplest terms, changes in the amount member banks borrow from the Reserve Banks are due principally to changes in their customers' currency requirements, and changes in the total amount of Federal Reserve credit in use are due principally to changes in member bank borrowing.

It is the fact that the country's marginal supply of currency is obtained by borrowing from the Reserve Banks that in normal times gives the currency elasticity. Banks feel free to borrow to get what currency they need, but they always try to repay their loans by returning currency at the earliest possible moment.

In currency transactions the Federal Reserve Banks are largely passive. They do not force money into circulation nor force it back from circulation. A low discount rate may make it easier for member banks to borrow and so obtain currency; a high discount rate may make it more difficult. But the initiative in withdrawing or returning currency is always taken by the member bank.

It is the facility with which member banks can borrow at the Reserve Banks which is primarily responsible for currency elasticity and it makes little difference at first whether the Federal Reserve

Bank pays out to the member bank Federal Reserve currency, gold certificates, silver certificates, United States notes or any national bank notes it may have on hand. In a certain sense the Federal Reserve System has made all types of currency elastic, because all can be paid out in amounts required and they all tend to flow back to the Reserve Banks when they are not required in the business of the country.

It is only in periods of emergency, when the resources of the Reserve Banks are strained, that the characteristics of the Federal Reserve note in requiring a gold reserve of only 40 per cent and being otherwise secured by discounted paper become important.

At such times it makes a real difference in the Federal Reserve statement whether it meets demands for currency by issuing gold certificates or Federal Reserve notes. A $100 Federal Reserve note may represent only $40 in gold, because a gold reserve of only 40 per cent is required against Federal Reserve notes. On the other hand, a $100 gold certificate must represent $100 in gold. Thus the Federal Reserve Banks could issue, in any emergency, in response to commercial demands which provide collateral security, two and one-half times as many Federal Reserve notes as gold certificates.

For example, the present amount of reserves of the Reserve Banks is about $3,000,000,000; the total amount of deposit and note liabilities is $4,000,000,000. The reserve ratio is thus three-fourths or 75 per cent. If the System paid out some $1,400,000,000 of gold certificates this reserve ratio would

be reduced to 40 per cent, but it could issue $3,500,000,000 additional Federal Reserve notes before the ratio reached 40 per cent. This computation in tabular form is as follows:

AT PRESENT:

Reserves	$3,000,000,000	= 75%
Liability for notes and deposits	$4,000,000,000	

IF $1,400,000,000 GOLD CERTIFICATES ARE PAID OUT:

Reserves	$1,600,000,000	= 40%
Liability for notes and deposits	$4,000,000,000	

IF $3,500,000,000 FEDERAL RESERVE NOTES ARE PAID OUT:

Reserves	$3,000,000,000	= 40%
Liability for notes and deposits	$7,500,000,000	

The importance of this secondary elasticity of currency, due to the expansive power it gives the Federal Reserve System, was illustrated during and after the war, when in response to war and post-war demands Federal Reserve notes were issued to the amount of $3,405,000,000, a maximum reached on December 23, 1920. Without the elasticity which the Federal Reserve note provided the situation could not have been met without extraordinary measures.

The gold holdings of the Reserve Banks are at present so large that a major part of the demand for currency could be met by payments of gold certificates rather than Federal Reserve notes. But in any emergency the power to issue these notes increases by 150 per cent the amount of currency which might be supplied to the country. It gives

a secondary elasticity which has been important once and may be equally important at some future time.

Elasticity in Practice.—An interesting test of the elasticity of the currency under the Reserve System may be made by comparing currency movements in this country with those of Canada. For many years before the adoption of the Federal Reserve System the Canadian banking system was frequently held up as a model which might be copied, from the point of view of currency elasticity at least. Canada is a country peculiarly in need of an elastic currency, for the nation's business is centered in agriculture, which requires much larger amounts of currency in the fall than at other times of year. Canadian bank note currency, an asset currency, has proved itself flexible.

Diagram 11 shows the fluctuations in paper money in circulation in Canada and in the United States before and since the establishment of the Federal Reserve. The two lines prior to 1914 tell the story of this country's currency difficulties. While the flexible Canadian currency responded regularly to changes in the seasonal need, our own was rigid, inflexible.

In the fall of 1914 the shock of the World War forced the use of the temporary Aldrich-Vreeland currency, but shortly thereafter the Reserve Banks were opened for business and Federal Reserve notes became a part of this country's currency. From that time on there began to be fluctuations here corresponding somewhat to the changes in Canadian currency. The United States does not need as large

a percentage of fluctuation in its currency as Canada; its industries and trade are more diversified. But the way the currency has fluctuated since an elastic element was added demonstrates that we had been suffering in the past from a kind of currency paralysis.

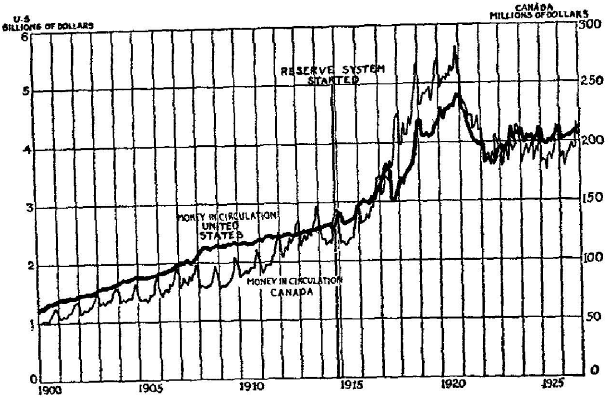


DIAGRAM 11—BEFORE 1914 THE CURRENCY OF CANADA WAS FLEXIBLE IN MEETING CHANGES IN BUSINESS NEEDS, BUT CURRENCY IN THE UNITED STATES WAS RIGID AND INFLEXIBLE. SINCE 1914 BOTH HAVE BEEN FLEXIBLE.

Diagram 12 shows an enlargement of two parts of Diagram 11 to bring out more clearly the present seasonal changes in note circulation compared with pre-war.

Currency, Wages, and Trade.—The typical seasonal changes which now appear to be characteristic of currency circulation are largely a reflection of the seasonal changes in wage payments, and the retail expenditure for which currency is principally used. A vast part of the country's business requires little

or no currency. Foreign trade, wholesale trade, security transactions, freight movements, etc., are carried on by the use of checks or other credit de-

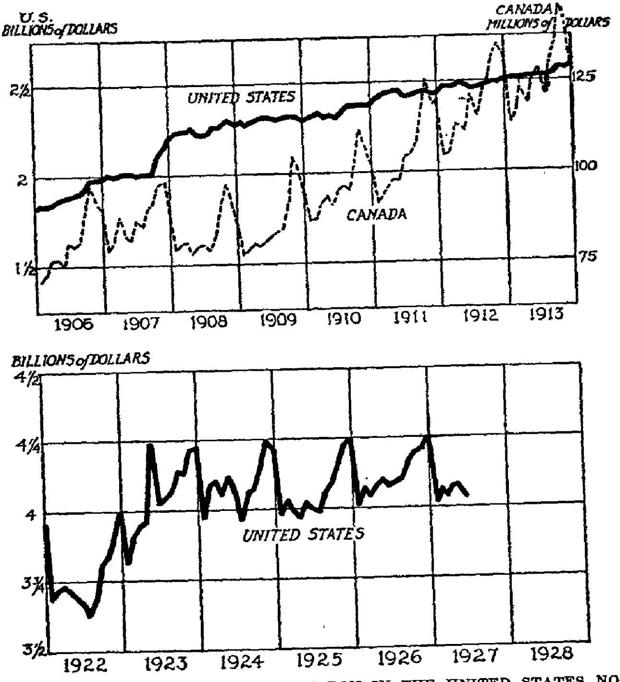


DIAGRAM 12—MONEY IN CIRCULATION IN THE UNITED STATES NOW HAS SEASONAL FLUCTUATIONS CORRESPONDING SOMEWHAT TO THE SEASONAL CHANGES IN CANADIAN CURRENCY.

vices. Wage payments and family expenditures are the principal uses of currency.

Diagram 13 illustrates the relation between currency in circulation and a combined index of wage

payments and retail trade, quoted from the Federal Reserve Bulletin, July, 1926. The data included in the combined index are only a sampling of the many uses of currency, but the correspondence between the movements of the two lines indicates a close connection between them.

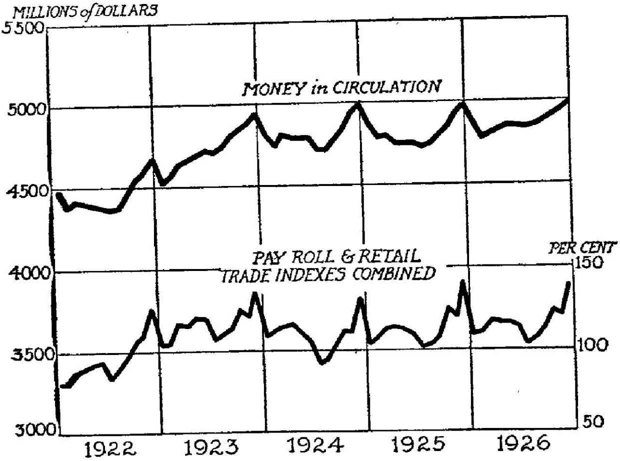


DIAGRAM 13—WAGE PAYMENTS AND RETAIL TRADE ARE TWO MAJOR FACTORS IN DETERMINING THE NEED FOR CURRENCY.

Characteristic Movements.—An interesting by-product of the centralization of currency reserve in the Reserve Banks is that it is now possible to trace day by day currency changes which were quite lost to view when they were scattered among individual banks. It is possible to observe in detail the relationships between trade and currency movements which have been commented upon broadly in the preceding paragraph.

Take as an example what happened to currency circulation over the Christmas period in 1924. Retail trade at Christmas time is always larger than at other times in the year; in fact, department stores of New York City and other cities usually do about one-seventh of their year's business in the month of December alone. This results in a considerable increase in the need for hand-to-hand currency, and there are other needs as well arising from increased payrolls, Christmas gifts, increased travel, larger food purchases, etc. The figures for currency withdrawals and receipts at the Federal Reserve Banks illustrate the way in which this special demand for currency was met. Prior to Christmas there was paid out about $300,000,000 of currency, all of which was returned to the Reserve Banks within the two or three weeks following Christmas, as shown in the table on the next page.

Here is a typical case of currency elasticity. Currency was put into circulation to meet a temporary need and then retired. An interesting and important fact about the movement was that elasticity was not confined to Federal Reserve notes. Gold certificates moved into and out of circulation just as freely.

Payrolls and Holidays.—A regular though less spectacular currency movement is the typical weekly movement largely reflecting withdrawals for payrolls and the return of this currency as it is redeposited in banks. This movement is so regular that with a few exceptions one week is almost a repetition of another. On Thursday banks begin to withdraw from the Federal Reserve Banks the

TABLE 5.—HOW CURRENCY FLOWS IN AND OUT OF THE RESERVE BANKS
(In millions of dollars)

Week Ended	Paid Into Circulation (Net)			Received From Circulation (Net)		
	Federal Reserve Notes	Other Money Mostly Gold Certificates*	Total	Federal Reserve Notes	Other Money Mostly Gold Certificates	Total
1924						
Nov. 26	22	18	40	..	..	..
Dec. 3	4	10	14	..	..	..
Dec. 10	5	23	28	..	..	..
Dec. 17	18	45	63	..	..	..
Dec. 24	70	54	124	..	..	..
Dec. 31	..	..	..	80	74	154
1925						
Jan. 7	..	..	..	57	39	96
Jan. 14	..	..	..	67	22	89

* Payments include gold drawn for export.

currency which their customers will require for their weekly payrolls and for week-end expenditures. Thursday and Friday there are large withdrawals for these purposes. Saturday there are smaller withdrawals. On Monday this money begins to flow back to the Reserve Banks and the flow continues on Tuesday and Wednesday. Of course, there are

some withdrawals on Monday, Tuesday, and Wednesday, and some deposits on Thursday, Friday, and Saturday, but deposits almost always exceed withdrawals on the first three days of the week and withdrawals exceed deposits in the last three days.

This weekly currency movement may be illustrated by the daily figures for a typical half year at the Federal Reserve Bank of New York. Table 6 shows the net movement each day from April 5 to October 2, 1926, between New York City banks and the Federal Reserve Bank. The "+" signs indicate net deposits of currency in excess of withdrawals and the "—" signs net withdrawals.

The first notable feature of the table is the clean division between the first and second halves of the week. The first half shows predominantly the "+" signs of net deposits and the second half "—" signs of net withdrawals. The average or typical weekly movement is shown at the foot of the table. The period was one of increasing demands for currency and hence withdrawals somewhat exceeded deposits.

A careful study of the table leads to a number of other conclusions about the country's use of currency. There is a distinct tendency towards heavy withdrawals at the end of the month for monthly payrolls and a less noticeable tendency around the fifteenth of the month. There are larger withdrawals just before holidays, and deposits afterwards. On the basis of these figures payrolls and holidays seem to account for most of the day-to-day fluctuations in currency circulation.

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TABLE 6.—DAILY NET CURRENCY MOVEMENT IN NEW YORK CITY TO OR FROM THE FEDERAL RESERVE BANK OF NEW YORK

(+ indicates deposits in the Reserve Bank, and – withdrawals from the Reserve Bank)
(In millions of dollars)

Week Beginning	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Apr. 5	+ 5.4	+ 11.7	+ 6.7	– 2.5	– 4.5	– 1.3
12	+ 3.0	+ 7.7	+ 3.3	– 8.7	– 8.0	– 2.0
19	+ 2.6	+ 8.3	+ 4.1	– 7.0	– 5.2	– 1.0
26	+ 1.5	+ 5.9	+ 3.5	– 10.8	– 13.7	– 3.8
May 3	+ 0.1	+ 8.1	+ 6.5	– 5.7	– 5.5	– 0.3
10	+ 3.5	+ 9.3	+ 3.9	– 9.1	– 9.7	– 2.2
17	+ 0.8	+ 7.8	+ 5.8	– 6.8	– 7.2	– 0.9
24	+ 2.6	+ 6.3	+ 2.9	– 13.5	– 12.4	– 4.0
31	Holiday	+ 0.7	+ 7.2	– 5.2	– 5.4	+ 0.4
June 7	+ 6.1	+ 9.8	+ 5.0	– 5.5	– 7.1	– 1.3
14	– 0.3	+ 3.7	+ 3.0	– 7.7	– 6.8	– 1.6
21	+ 3.2	+ 7.7	+ 4.1	– 7.5	– 8.2	– 1.2
28	– 0.9	+ 1.6	– 1.2	– 14.8	– 14.0	– 0.8
July 5	Holiday	+ 4.5	+ 12.8	– 0.8	– 4.1	+ 1.0
12	+ 4.0	+ 10.0	+ 3.6	– 7.8	– 6.3	– 2.1
19	+ 0.8	+ 6.7	+ 4.3	– 7.5	– 7.2	– 1.2
26	+ 1.1	+ 6.5	+ 0.8	– 10.5	– 9.6	– 3.8
Aug. 2	– 4.6	+ 5.5	+ 3.2	– 8.7	– 7.2	– 0.3
9	+ 2.2	+ 7.2	+ 3.1	– 9.8	– 9.3	– 2.6
16	– 0.7	+ 4.6	+ 3.2	– 8.8	– 8.2	– 0.6
23	+ 2.3	+ 7.0	+ 3.4	– 9.2	– 7.7	– 1.3
30	– 2.3	– 1.8	+ 3.9	– 11.1	– 8.2	– 1.8
Sept. 6	Holiday	+ 0.8	+ 7.9	– 6.0	– 4.5	+ 0.6
13	+ 3.2	+ 8.4	+ 2.2	– 8.3	– 6.3	– 0.4
20	+ 1.5	+ 7.5	+ 4.4	– 6.2	– 6.0	– 0.3
27	– 8.5	+ 5.6	– 0.9	– 13.5	– 11.4	– 2.7
Average	+ 1.2	+ 6.2	+ 4.2	– 8.2	– 7.8	– 1.4

Size of Currency Operations.—Most of the bills and coin in use in this country have been placed in circulation by the Federal Reserve Banks. The principal exception is national bank notes, which are put into circulation by national banks. Other forms, gold certificates, silver certificates, United States notes, and Federal Reserve notes are placed in circulation principally by the Reserve Banks. These banks are constantly receiving from the Bureau of Engraving and Printing of the Treasury Department in Washington, where all money is printed, supplies of new money. They are constantly receiving from the member banks currency in all stages of wear. Used currency is sorted and all badly worn notes are eliminated, and new notes issued instead.

There is now in circulation in this country, in the pockets of individuals, in the safes and tills of business concerns and banks, and actually passing from hand to hand in trade a little less than $5,000,000,000 of money. In 1926 over $13,000,000,000 of currency and coin passed through the hands of the Reserve Banks. At this rate the total amount of money in circulation passes through the Reserve Banks about two and one-half times a year or once every five months.

To handle so large a volume smoothly and to be prepared for emergencies the Reserve System carries in Washington and in the vaults of the twelve Reserve Banks and their twenty-six branches and agencies a reserve of $3,000,000,000 of new currency in addition to the working stock of old currency. Practically no bank is distant more than twenty-

four hours and the vast majority of banks are distant only overnight from one of these currency depots. An adequate supply of currency is thus always readily obtainable.

The mechanical handling of currency is, in terms of volume of work, one of the largest of the functions of the Federal Reserve Banks. In the case of the Federal Reserve Bank of New York, for example, a force of about 300 people out of a total staff of 2,400 is employed solely in handling currency and coin. Counting of coin has for some years been a machine operation and recently a machine has been invented and adopted for counting paper money, which almost doubles the per capita daily output of employees counting money. The expense of the currency and coin operations of the New York Reserve Bank, including printing costs, for which the bank pays the Bureau of Engraving and Printing, the cost of sorting, counting, wrapping, paying, and shipping, and including overhead expense is about $1,800,000 a year or about 28 per cent of the total expenses of the bank. In the other Federal Reserve Banks the expense of handling money has much the same relation to total expenses. In taking over and absorbing the cost of this work the Federal Reserve Banks have relieved the United States Treasury, which used to do much of the work through the old Subtreasuries (now abandoned), and have also relieved the large banks in money centers, which used to do much of this work for their out-of-town correspondents. The centralization of the work, moreover, in the Reserve Banks makes a quantity job of it. In addition to its

service in giving the currency elasticity the Federal Reserve currency mechanism is an effective public economy.

SUMMARY

1. The Federal Reserve System has supplied a new kind of currency, the Federal Reserve note, which now constitutes between one-third and one-half of the total paper money in circulation in the country.
2. This new currency, secured in part by commercial paper or bank obligations, can be increased or decreased to meet fluctuations in the need for money.
3. The concentration of reserve supplies of currency in the Reserve Banks gives elasticity to all forms of currency, for added amounts can be drawn into use when needed.
4. Member banks draw currency from the Reserve Banks in much the same way that any customer draws money from a bank. When the need for currency is large, member banks usually have to borrow from the Reserve Banks to maintain their reserves. The desire of banks to repay this borrowing is one of the forces that bring currency back to the Reserve Banks promptly when the unusual need is passed.
5. The change that has taken place in the elasticity of currency may be illustrated by comparing the seasonal variations in the amount of currency in circulation in this country and Canada. Formerly the Canadian currency responded promptly to

seasonal changes in business, but this country's currency was inflexible. Now the currency here shows seasonal fluctuations much like those in Canada.

6. Fluctuations in currency circulation reflect principally changes in payrolls and retail trade. There are notable increases at regular payroll periods and at holidays, particularly at Christmas.
7. The mechanical handling of currency is in terms of volume of work one of the largest functions of the Reserve Banks. In 1926 the Reserve Banks handled $13,000,000,000 of currency and coin. The total amount of money in circulation passes through the Reserve Banks about once every five months.

CHAPTER V

Improved Methods of Business Settlements

IN the days before the Federal Reserve System when Peter Brown, hardware merchant of Canyon, Colorado, settled his bills for the month it was quite a complicated process. The bill from the United Hardware Company of Madison, Wisconsin, bore the legend, "This bill payable only in Chicago funds." The Buffalo Steel Plow Company invoice called for a draft on New York. The St. Louis Screw Corporation asked for settlement in St. Louis funds. Brown's check book on the People's Bank of Canyon could not be used in paying most of his out-of-town bills, and every month Brown had to purchase at his bank seven or eight drafts on Chicago, New York, and other centers. He paid several dollars a month for these drafts.

Today when Peter Brown pays his bills he rarely has to buy a draft. He can settle practically all bills with his own checks on the People's Bank. This is because, in general, invoices no longer specify that settlement must be made in drafts on particular centers. Checks on the People's Bank of Canyon, Colorado, are accepted in every part of the country.

It seems a simple thing for concerns doing a national business to omit from their invoices a single line specifying what funds will be accepted in payment, but that omission reflects a transformation

in the methods of check collection, a transformation which constituted a new and important step in the evolution of sound and efficient methods of business settlements in the United States.

Evolution of Business Settlements.—Perhaps the first step taken by the United States as a nation in providing adequate means for business and financial settlements was the passage of the Coinage Act of 1792, which gave the country a standardized coinage which might circulate at par value, 100 cents on the dollar.

Paper currency provided our next series of problems in business settlements. During the first half of the nineteenth century we were trying various experiments in securing a satisfactory currency with which debts might be paid and business transactions settled. During that period our people were under the necessity of scrutinizing every bank note which came to them, and frequently incurred losses because paper money received, even when issued by perfectly sound banks, could not be redeemed at its full face value. Banker and merchant kept at hand a "Ready Detector" to identify currency and determine its true value. This condition was largely remedied by the passage of the National Bank Act in 1863-1865, which taxed out of existence the old state bank notes and provided for the issuance of a national bank note currency, secured by government bonds and accepted at every national bank at par value.

Checks were the third means of business settlement which called for standardization. The second half of the nineteenth century, which was notable

for the growth of organized industry, remarkable railroad expansion, and a corresponding financial development, was notable as well for the widespread development by American business and finance of a new means for making settlement in business transactions—the bank check. By the end of the century studies carried forward in the office of the Comptroller of the Currency indicated that between 80 and 90 per cent of the country's business was settled by check and only 10 to 20 per cent by the use of coin and currency.

The problems arising from the widespread use of checks were similar to the old currency problems. As the business man previously had scrutinized the currency he received to make sure it could be redeemed at its face value, without deductions, so at a later date he scrutinized checks to make sure that they could be turned into cash rapidly at par value, 100 cents to the dollar. The acceptability of checks as substitutes for coin or currency depended on rapid convertibility into cash, dollar for dollar.

Clearing House Introduced.—The first step in securing rapid settlement of checks was the introduction of the clearing house. The New York City Clearing House, the first in this country, was established in 1853. Before that time each of the fifty-two banks in New York City sent a messenger to each of the other banks with packages of notes and checks. Each of the fifty-two banks kept detailed ledger accounts for each of the other fifty-one banks. Under this cumbersome practice daily settlements were impossible and a weekly settlement was made every Friday. This postponement of the day of

reckoning and the abuses it fostered, together with the inefficiency of the old plan, made reform essential to any wide use of checks. The clearing house was successful immediately upon its establishment, although four of the original fifty-two banks could not stand the test of daily settlements, and were expelled.

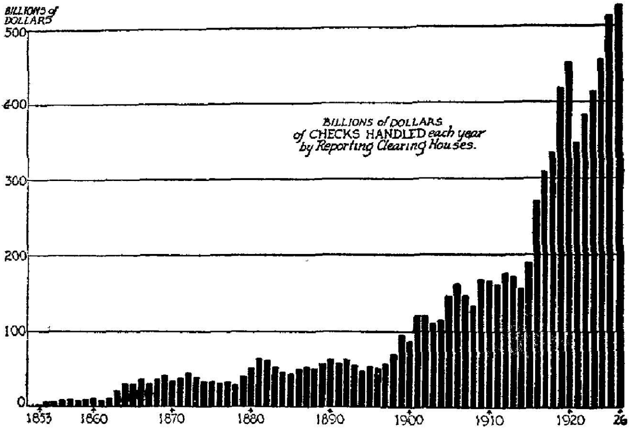


DIAGRAM 14—GROWTH OF CLEARING HOUSE OPERATIONS IN THE UNITED STATES.

The clearing house idea spread rapidly to most of the large cities and the amount of checks handled through clearing houses rose, as shown in Diagram 14, from about one billion dollars a year, when only the New York Clearing House was in operation, to over 500 billions at present.

A Major Defect.—But there was still one major defect in the check-collection scheme—there was no simple economical method for collecting checks

between different towns and cities; there was no nation-wide system for the collection of checks corresponding to the city clearing house.

To collect checks drawn on out-of-town banks, each bank had to make special arrangements with special banks in other centers, and the machinery of check collection thus became a complicated maze of special relationships between banks. As a result check collection was expensive, slow, and at times uncertain.

The expense of check collection to the business man was of two kinds: The first expense resulted from the time required for collection. While the check was in process of collection the bank in which the check was deposited lost the use of the funds, if it allowed the depositor to draw against the check before collection. To cover this expense most banks made an *interest charge,* sometimes called a collection charge, or required the customer to keep a balance sufficient to cover checks in process of collection. This charge was sometimes made even when customers were not allowed to draw against uncollected funds.

The second kind of expense was a charge made, not by the bank collecting the check, but by the bank paying its own check. This charge purported to cover the cost of providing funds to pay the check in a distant city. In theory the paying bank had to ship currency or pay the cost of maintaining a bank balance in a distant center. In practice, of course, checks presented to a bank for payment from other cities were largely offset by checks moving in the opposite direction, and only the balance

between incoming and outgoing checks had to be settled. But because the payment of every check presented from a distance involved in theory an expense it was the custom for most banks outside of large centers to make a small charge when they paid checks drawn on themselves presented from out-of-town. When they paid a check for $100 they deducted from 10 to 25 cents and paid only $99.90 or $99.75. This deduction from face value in paying checks was known as an *exchange charge*, because the bank making the payment was, in theory at least, exchanging local funds for funds in some other center. It was in theory a transaction in inland exchange; and in those days there was frequently a premium or discount on inland exchange.

Some banks when collecting checks for their customers absorbed the exchange charges they had to pay, but most banks passed the charge back to the customer. If the business man accepted in payment of a bill a check for $100 drawn on a distant bank, it was worth not $100, but perhaps $99.75. It was largely to avoid this loss, which on thousands of transactions amounted to a considerable sum, that the United Hardware Company, the Buffalo Steel Plow Company, and the St. Louis Screw Corporation of our illustration declined to take checks from Peter Brown drawn on the Canyon, Colorado, bank.

Expense, Delay, and Risk.—Business men and bankers were constantly searching for ways in which they could avoid the payment of this exchange charge. One way of avoiding the charge was, as we have seen in the case of Peter Brown, for wholesale houses to accept only drafts on large near-by cen-

ters. Another way was to accept out-of-town checks, but make special arrangements to present them for payment, not by mail from a distance, but from the same or a near-by town; so that the paying bank would have no occasion for charging exchange. If a St. Louis bank received a Canyon, Colorado, check it might send it to a bank in Denver, Colorado, which regularly collected checks on the Canyon bank, and by reason of its special arrangements could make the collection without being charged exchange.

But the St. Louis bank might not have a correspondent in Denver and therefore might send the check to a Chicago bank which did have such a correspondent. A check might be sent to three or four cities before it was collected. Indirect routing of this sort added further delay to a check-collection scheme, which, for lack of any nation-wide system, was slow at best.

Delay of this sort increased the amounts of interest which banks charged their customers for the use of uncollected funds.

Delay also increased the risk of non-collection. Every day which elapsed before the check was presented for collection increased the danger of return for lack of funds, and the danger from the failure of some bank handling the check on its long journey or of the bank on which the check was drawn. Each day of delay before the depositor of a check was notified of its non-payment delayed the presentation of claims and increased the risk of nonpayment.

The old lack of system in collecting country

checks thus bore fruit in expense, delay, and risk, and banks were constantly searching for means by which these evils might be corrected. Many city clearing houses organized country check departments to systematize, in part at least, the collection of out-of-town checks. Many country banks situated near cities arranged to have checks drawn upon them settled through their correspondent in the city clearing house. These and other schemes were only partly successful, and when Federal Reserve legislation was under discussion there was general insistence that it should include a nation-wide plan for check collection.

A New Mechanism.—The Federal Reserve System provided a mechanism for nation-wide check collection, to do very much for the banks of the nation what the clearing house does for the banks of the city. Twelve Reserve Banks, with twenty-four branches, provide offices within easy reach of every bank in the country. Over 9,000 member banks, with more than two-thirds of the country's banking resources, keep their reserves deposited at these Reserve Banks—a natural basis for check settlements. Debits from collections can be charged to these reserve deposits, and credits can be added to reserve deposits.

For settlements between the Reserve Banks there has been set up that ingenious device, the gold settlement fund, lodged in Washington with the Federal Reserve Board, and represented by a gold credit on the books of the Treasurer of the United States. This fund is owned by all the Federal Reserve

Banks, and settlements between Reserve Banks are daily effected by bookkeeping entries, on telegraphic advice, changing the proportion of the gold fund which the different banks own.

In these ways the Reserve System provides channels through which the funds represented by checks may flow readily from one part of the country to another, and through which settlements of these checks may be made with great rapidity and at a minimum of expense.

The operation of the Federal Reserve check-collection mechanism in its simplest form is as follows: When Peter Brown's check on the People's Bank of Canyon, Colorado, comes to the St. Louis Screw Corporation, it is deposited with the Third Trust Company of St. Louis, and collection takes the following course:

1. The Third Trust Company deposits it for collection with the Federal Reserve Bank of St. Louis.
2. The Federal Reserve Bank of St. Louis sends it to the Denver branch of the Federal Reserve Bank of Kansas City.
3. The Denver branch sends it direct to the People's Bank of Canyon.
4. The People's Bank settles with the Denver branch in Denver funds or Federal Reserve funds.
5. On receipt of this remittance check the Denver branch gives the Federal Reserve Bank of St. Louis credit immediately. On the same day the Federal Reserve Bank of St.

Louis gives the Third Trust Company credit. An immediate bookkeeping settlement between Reserve Banks thus takes the place of mail remittance.

As a matter of practice, the average time it takes for the collection of a check drawn on any point has been established by experience and is reflected in a printed schedule which each Federal Reserve Bank prepares and distributes to its members. Accordingly, the Federal Reserve Bank of St. Louis automatically gives the Third Trust Company credit for Peter Brown's check five days after it is deposited. Before the Federal Reserve System it would have taken about ten days. The principal saving arises from the elimination of remittance by mail which is replaced by telegraphic settlement between Federal Reserve Banks. Time is also saved by more direct handling.

There are other special arrangements which have been worked out to secure greater speed of check collections. Some of the Reserve Banks have their own post offices and send their mail pouches direct to mail trains, and thus save the few hours that would be required to send mail to central post offices. Many member banks handling large amounts of checks have made arrangements to send checks direct to Federal Reserve Banks of other districts instead of through their own Reserve Banks. Settlement, however, is effected on the books of their own Reserve Banks. A number of county clearing arrangements have been devised by which banks in the same county may exchange

checks directly and the balances may be settled at the Federal Reserve Bank.

Cause of Exchange Charge Removed.—The exchange charge formerly made by many banks in paying their own checks was made, as we have seen, on the theory that it cost a banker something to pay his out-of-town checks, either in the shipment of currency or in maintaining out-of-town balances. With the existence of the Federal Reserve collection system the occasion for such exchange charges disappeared. It no longer costs the banker whose checks go through the Federal Reserve collection system anything extra to pay his checks from out-of-town, because these checks are presented through the nearest Federal Reserve Bank, or branch, and not from a distance. He no longer has to make payment at a distant point but at the nearest Federal Reserve office, and the Reserve Bank pays the cost of all currency shipments.

It is thus logical that under the law the Federal Reserve System can accept and collect only checks payable at par, without exchange deduction. This elimination of exchange charges for most of the country's checks removes one of the principal causes of delay in collection.

Time Saved.—The Federal Reserve System saves time in collecting out-of-town checks in three principal ways:

1. Systematic and wholesale handling.
2. Elimination of the indirect routing which formerly prevailed to escape exchange charges.

3. Telegraphic settlement between Reserve Banks.

The time for collecting checks under the Federal Reserve System varies from one day in the case of near-by cities, where there are Reserve Banks and branches and where checks are presented at the local clearing house, to nine days in the case of the most distant transcontinental points. In general, the time required to collect checks has been cut in half.

Money Saved.—The Federal Reserve collection system saves money for banks and business in the following principal ways:

1. Reduction in the number of times checks have to be handled.
2. Handling large numbers of checks by quantity methods.
3. Reduction in amount and distance of currency shipments.
4. Reduction in number of out-of-town drafts.
5. Reduction in interbank balances for collection purposes.
6. Reduction in accounting costs.
7. Absorption by Reserve Banks of costs of check handling and currency shipments.

There is no way of computing accurately the saving to the country from the operations of the system, because the saving reaches all the way from the small country bank to the large city bank, and from the small business man or farmer to the large industrial enterprise. The total is certainly many millions of dollars a year.

There is similarly no way of knowing just how the benefits of the system have been divided between banks and their customers, because banking customs differ so widely in different parts of the country.

Certain of the savings to customers are perhaps more direct and obvious than the savings to banks. The Peter Browns who sell hardware and other merchandise in all parts of the country no longer have to buy drafts or keep accounts in the large cities to pay their out-of-town bills. Except in rare cases wholesale houses no longer suffer the deduction of exchange charges when they collect their out-of-town checks.

The interest (or collection) charges which business men pay their banks for advancing the amount of out-of-town checks while they are being collected have been much reduced because the time of collection has been shortened. Of the more than 325 clearing houses in the United States only twenty-five now require banks in their membership to make charges of this sort.

Loss through non-payment has been reduced because checks are presented more rapidly and notification of non-payment is received more rapidly.

All these are direct and obvious money benefits to business resulting from the Federal Reserve collection system.

To the extent that banks used to absorb the cost represented by exchange and interest charges they have been direct gainers from the new system. But most of the benefits to banks have been somewhat less obvious and direct such as a reduction in risk

of loss because of the shortened time of collection, reduced clerical labor in handling and accounting for checks, reduction in the amount of currency shipments and payment of costs of such shipments by the Reserve Banks, and reduction in the number and amount of out-of-town bank accounts. Perhaps the most important benefit is that the country check has become an acceptable means of payment for out-of-town bills. The country bank can now offer its customers checking facilities which before could only be offered by the city bank. The country bank can, therefore, retain deposits which before would have been diverted to cities.

Every new invention and every forward step in industrial and social evolution has brought with it necessary readjustments. When the cotton gin was invented, it threw many out of work. So the typewriter and the adding machine made shifts in occupations necessary. The linotype forced many a typesetter to learn practically a new trade or be out of a job. When the National Bank Act taxed state bank notes out of existence, it deprived the state banks of a profitable business. When the city clearing house was introduced, a number of banks, as we have seen in the case of New York City, were not able to adjust their operations to the new scheme.

The establishment of the Federal Reserve collection system, based on par payment, has made radical changes in this phase of banking, but the banks of the country have adjusted themselves to the changed conditions with remarkable rapidity. Following a period of experimentation, the collection

system in its present form was inaugurated in July, 1916. Today, after eleven years, it is estimated that 98 per cent of the checks drawn in the United States are payable at par through the Federal Reserve System. The Reserve System now handles for collection probably 95 per cent of all out-of-town checks. The twelve Reserve Banks handle over 2½ million

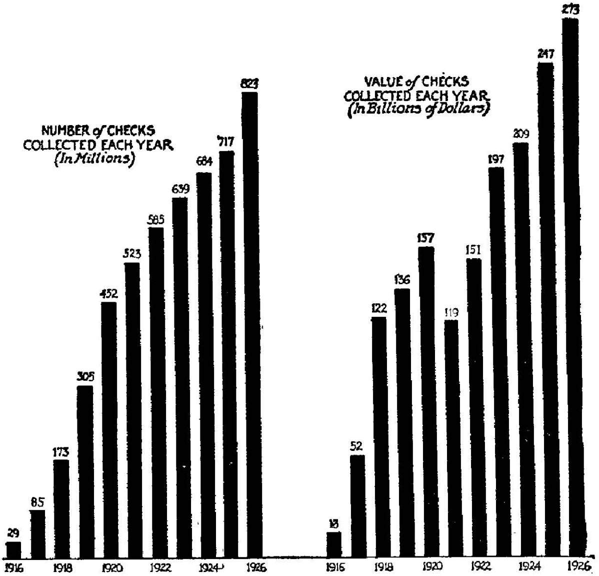


DIAGRAM 15—GROWTH OF THE FEDERAL RESERVE CHECK-COLLECTION SYSTEM.

checks a day for collection, with a value of about 900 million dollars. The total value of checks collected each year is well over 250 billion dollars, an amount equal to about five times the country's

total bank deposits. This work is done without charge, and checks are collected in about half the time it took under the old plan.

While most of the banks in the country have cheerfully assisted in the development of the Federal Reserve check-collection system and have been willing, for the sake of the other advantages they enjoyed, to pay their checks at par and give up the charging of exchange, there have been a few small banks, particularly in country districts in the South and West, which have resisted the new plan or have not been able to satisfy the requirements of the System for the prompt payment of checks drawn on them. These few banks have continued to charge exchange and their checks, therefore, cannot be handled by the Federal Reserve Banks since the law provides that "no such charges shall be made against the Federal reserve banks." Checks drawn upon these banks are still handled by the old haphazard methods.

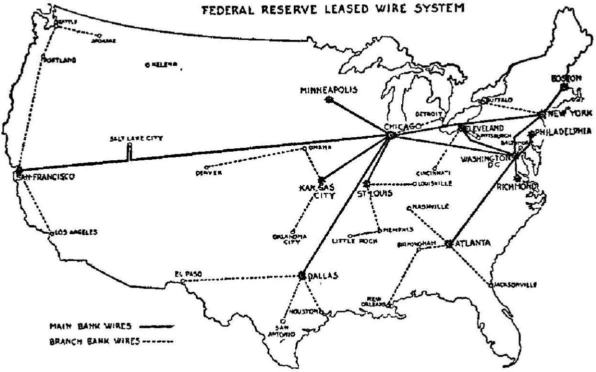
At one time when the check-collection system was being introduced the Reserve Banks made a vigorous effort to bring some of the recalcitrant banks into the par system. When banks would not remit at par for checks sent to them by mail, the Reserve Banks proceeded through local agents to present checks over the counters of these banks, thus requiring settlement without deduction of exchange. Some of the banks objected vigorously to this practice, and litigation was instituted both by these banks and also by some of the banks which were paying their checks at par. The history of these suits, involving as they did many technical-

ities of interpretation of banking practice and of law, has no place in this book. Several of the cases were carried to the United States Supreme Court. In brief, the result was that the Federal Reserve par collection system was upheld in its entirety, even to the right of the Reserve Banks to present checks over the counter for collection when banks would not remit at par by mail. In view, however, of the small number of banks not remitting at par, and the opposition aroused in forcing par payment by counter presentation, the Reserve Banks have discontinued that practice and do not handle for collection checks drawn on banks which charge exchange. It is believed that the importance to the bank customer of having his bank use the Federal Reserve collection system will in time make it essential for all banks to remit at par and enjoy the advantages of the nation-wide collection system.

Wire Transfer of Funds.—Along with the development of the Federal Reserve check-collection system has gone the development of a system for transferring funds by wire more rapidly and at smaller cost than before the Reserve System was established. What the check-collection system has done for settlements by check the wire transfer system has done for telegraphic settlements.

Only a few years ago a man in Chicago having a bill to pay immediately in New York would usually buy "New York exchange," in just the same way as a New York merchant buys London exchange in the course of overseas trade. Domestic exchange was subject to many of the rules that govern the foreign exchanges; it fluctuated, was bought and

sold, and registered the ebb and flow of business currents. Often, as in the foreign exchanges, the shipment of gold or currency was required to settle net balances of payments between different parts of the country. These shipments were expensive and subject to the hazards of transportation. There was a normal seasonal movement toward the West in the autumn, when the crops were being harvested,



MAP 2—THE FEDERAL RESERVE TELEGRAPHIC-TRANSFER SYSTEM PROVIDES A FREE FLOW OF FUNDS ABOUT THE COUNTRY. BOOKKEEPING BY TELEGRAPH LARGELY REPLACES CURRENCY SHIPMENTS.

and a flow back to New York in the winter, when goods were being paid for and investments made. All of this was expensive, not only because of the cost of shipment and insurance, but because of the unproductivity of funds while in transit.

Under the Federal Reserve System shipments of gold and currency for the purpose of settling balances have been almost wholly eliminated. While writers still describe movements and transfers of

funds quite as if shipments were being made, they refer to transfers accomplished instantly and at par over the wires of the Federal Reserve System Physical shipments are now practically restricted to the supplying of hand-to-hand currency for use as till money to member banks by their Reserve Banks and to the return to the Reserve Banks of such currency as is not needed by the business of the country.

The mechanism of wire transfers through the Reserve System is that the X bank in New York, for example, wishing to transfer $1,000,000 to the Y Bank in Chicago, advises the Federal Reserve Bank of New York. The following steps are taken:

1. The New York Reserve Bank telegraphs the Chicago Reserve Bank and simultaneously debits the reserve account of the X bank $1,000,000.
2. A few minutes later the Chicago Reserve Bank credits the reserve account of the Y bank $1,000,000 and notifies the bank, which may use the funds immediately.
3. At the end of the day the New York and Chicago Reserve Banks report to the Reserve Board in Washington the total debits or credits resulting from their operations with each other and settlement is made by changes in the ownership of the gold settlement fund.

The general principle of wire transfers is thus similar to the principle of check collection through the Reserve System. The various offices of the

System in all parts of the country, with their well-developed means of communication and their plan for daily settlement of accounts through the gold settlement fund, provide a ready channel for the rapid movement of bank funds about the country.

Transfers of member bank balances in round amounts are handled free of charge over the leased wires, but transfers for member banks for the accounts of banks, individuals, firms, or corporations are made over commercial wires, for which there is a charge to cover the cost of the telegram. Such transfers may be for any purpose or for any amount. The volume of wire transfers made by the twelve Reserve Banks has grown rapidly to an enormous business, as may be illustrated by the following figures for transfers made each year by the Federal Reserve Bank of New York alone.

Table 7.—Wire Transfers Made by the Federal Reserve Bank of New York

	Number of Transfers	Amount of Transfers
1917........	10,000	$ 6,768,000,000
1918........	39,000	19,384,000,000
1919........	84,000	18,365,000,000
1920........	154,000	17,410,000,000
1921........	215,000	18,160,000,000
1922........	236,000	25,126,000,000
1923........	284,000	28,032,000,000
1924........	293,000	35,183,000,000
1925........	294,000	38,821,000,000
1926........	329,000	44,392,000,000

SUMMARY

1. Three important steps in the evolution of means of payment in the United States have been the standardization of coinage, the standardization of paper money, and the development of systematic methods for check collections.
2. What the clearing house did for city checks the Federal Reserve System has done for out-of-town checks in providing a means of systematic handling and thus reducing expense, delay, and risk in collections.
3. The Reserve System with its twelve banks and twenty-four branches provides a mechanism for the expeditious routing and collection of checks and remittance time is shortened by telegraphic book settlements through the gold settlement fund.
4. Since the Reserve Banks now make settlements between distant points there is no more occasion for the "exchange charge" which banks used to make in paying their own checks presented from a distance.
5. Since the Reserve System has cut in half the time required to collect checks, it has greatly reduced the "interest charge" which some banks make for the use of funds represented by uncollected checks.
6. Savings to business men and bankers from the Federal Reserve check-collection system include

   Reduction in number of times checks have to be handled, because of more direct routing.

Reduction in the credit risk by speeding up check collections.

Reduction in amount and distance of currency shipments.

Reduction in interbank balances for collection purposes.

Reduction in need for purchase of special bank drafts.

7. Under the present plan the check on the country bank has become as acceptable a means of payment as the check on the city bank.
8. The banks of the country have adjusted themselves rapidly to the improved check-collection mechanism, and 98 per cent of the checks drawn in the United States are now payable at par through the Federal Reserve System.
9. The Federal Reserve private wire system and gold settlement fund are also used for transferring funds between all parts of the country, with large saving of expense and inconvenience.

CHAPTER VI

BANKERS FOR THE GOVERNMENT

THE United States Government is the largest customer of the Federal Reserve Banks. It sometimes deposits in these banks as much as $100,000,000 in a single day and it frequently makes payments totaling even larger amounts. The volume of Treasury operations with the Reserve Banks is illustrated by Table 8, on the next page, showing the debits and credits to Treasury account at the Federal Reserve Bank of New York for the month of September, 1925. The nature of the transactions may be gathered by running one's eye down the items listed in this table.

The following comments may be made concerning certain of the items in the table:

CHECKS AND WARRANTS.—Treasury checks in payment of pensions, war risk insurance, or any other Treasury disbursements are payable at any one of the twelve Federal Reserve Banks or their twenty-four branches. The commercial banks with which such checks are deposited present them at the Federal Reserve Banks for payment. These checks come through in enormous volume. The government check division of the Federal Reserve Bank of New York, for example, handles about 36,000 separate government checks each day and the value of these checks averages in the neighborhood of 4

TABLE 8.—TREASURER'S ACCOUNT, SECOND FEDERAL RESERVE DISTRICT—MONTH OF SEPTEMBER, 1925

Debits	
Checks and warrants paid	$ 81,234,000
Coupons paid	39,548,000
Treasury notes and certificates redeemed	127,681,000
Funds transferred from New York	49,952,000
Purchases account Treasury, various bureaus	53,455,000
Special one-day certificates redeemed	278,000,000
Payment to Republic of Colombia	5,000,000
Total debits	$634,870,000

Credits	
Income taxes	$119,695,000
Internal revenue receipts	49,477,000
Other receipts	28,722,000
Withdrawals from government depositaries	3,437,000
Funds transferred to New York	155,987,000
R. R. payments and sale of railroad notes	2,312,000
Sales account Treasury, various bureaus	778,000
Special one-day certificates issued	278,000,000
Total credits	$638,408,000

million dollars. Checks and warrants of this sort paid by the twelve Reserve Banks in 1926 totaled about 4 billion dollars.

COUPONS PAID.—The Reserve Banks also cash the coupons of government bonds. The bulk of this work is done when the interest becomes due on the 15th of certain months, but thousands of dollars'

worth of coupons are presented for redemption each day, largely by member banks, at each of the Reserve Banks. During 1926 about 40 million separate coupons were paid with a value of more than 600 million dollars.

Treasury Notes and Certificates Redeemed.—Government securities of all kinds are redeemed at the Federal Reserve Banks or branches when they mature, and this redemption is such a large transaction when it occurs that it not only places a peak load of work on the Federal Reserve Banks at the quarterly tax dates, but causes exceedingly interesting movements in the money market, which will be described later in this chapter. Redemptions throughout the System amounted to 2½ billion dollars in 1924.

Funds Transferred from New York.—Through the private telegraph wires of the Federal Reserve Banks the Treasury transfers millions of dollars from one part of the country to another to utilize its available funds to the fullest advantage in meeting its engagements in all parts of the country.

Purchases for Account of Treasury.—There are a number of government agencies which have funds to invest, such as the Veterans' Bureau and the Alien Property Custodian. In addition, the Treasury from time to time buys government securities in the open market from surplus revenues and for account of the sinking fund. All of these purchases are handled by the Federal Reserve Banks, which, through their close association with the money market, are able to arrange these large trans-

actions at satisfactory prices and with a minimum of disturbance to the market.

SPECIAL CERTIFICATES.—To make unusually heavy payments in redeeming maturing obligations on tax dates the Treasury overdraws its account at the Federal Reserve Banks. The overdraft takes the form of a purchase by the Reserve Banks of a one-day special Treasury certificate of indebtedness, the amount of which is reduced each day by the use of funds which have become available during the day. It is only at the quarterly tax dates, on March 15, June 15, September 15, and December 15, that this special borrowing by the Treasury becomes necessary for a few days. The amount of this one-day borrowing frequently runs as high as 150 to 200 million dollars on the 15th and is rapidly reduced on succeeding days until it is completely repaid within from three days to a week.

Most of the other items in the summary table of the September transactions with the Treasury do not require explanation in detail. The table clearly indicates the wide range and the large volume of operations which are carried forward by the Reserve Banks in their capacity as bankers for the government. There are still further activities, which do not appear in Table 8, including the issue of new securities; the exchange or transfer of registered and coupon securities; the holding in safekeeping of securities; and the operation of a system for the telegraphic transfer of short-term government securities.

An analysis of the personnel and expenditures of the Federal Reserve Bank of New York indicates that out of a total staff of 2,400 people the full time

of about 200 is now employed in handling banking transactions for the United States Government. An analysis of the expense account shows that more than 10 per cent of the bank's entire expenses, or in the neighborhood of $650,000 a year, is fairly chargeable to Treasury banking business. For all the Federal Reserve Banks the number of workers handling such transactions is about 750 and the annual expense is probably over 2 million dollars.

Some years ago the Federal Reserve Banks were reimbursed by the Treasury for most of this expenditure, but in 1921, by agreement with the Treasury, this ceased to be the case. There is now reimbursement for only certain specified expenditures in connection with new security issues, and nine-tenths of the work done for the Treasury is done without charge, although the Treasury to some extent pays indirectly, since the expense of work done for the Treasury reduces the amount of net earnings available at the end of each year for payment to the Treasury as a franchise tax.

With all its vast turnover of funds, amounting for the System as a whole to between half a billion and a billion dollars a month, the Treasury Department carries an average balance with the Reserve Banks of about 30 million dollars, a smaller balance than is carried by some of the large member banks. Treasury deposits thus have a rate of turnover in the neighborhood of twenty-five times a month or 300 times a year.

Earlier Experiments.—The United States Government had been looking for a satisfactory banking agency for a long time before the inauguration of

the Federal Reserve System and several experiments had been tried. As a bank customer the government is exacting in its requirements, carries on an enormous volume of banking transactions, keeps a small balance, objects to paying a service charge, and requires very detailed accounting. Any banking agency for the government must meet four requirements:

1. It must be absolutely sound.
2. Transactions with it must involve no favoritism.
3. It must transact operations efficiently and rapidly.
4. Its transactions must not disturb the money market.

Not only in the United States, but in foreign countries as well, the problem of the relationship between the state and the money market has been almost, if not quite, as troublesome as the relation between the state and religion. The relation of state and money market cannot be settled in the same way as the problem of state and religion, for it is impossible to draw a line of cleavage between the state and the money market so long as the state must raise revenue and pay bills.

In this country divorcing state finance from the money market has been tried. After some preliminary experiments during the first half of the nineteenth century in various forms of government banking practice, and when some organized system was found to be essential after the Second Bank of the United States had been discontinued, a plan was

set up in 1846 called the Independent Treasury System, and designed to separate state finance from the money market as completely as possible. The government decided that it would be its own banker and have nothing to do with the privately organized banking institutions of the country. Government banking offices were set up in the six cities of New York, Boston, Charleston, St. Louis, Philadelphia, and New Orleans, and at those offices the government collected revenues and paid its bills. Under this system revenues had to be paid in specie, and disbursements were likewise made in specie. Government balances were locked up in cash.

The history of the succeeding sixty years is a record of the gradual breakdown of the Independent Treasury System. The scheme could not endure. It received its first serious setback at the outset of the Civil War, when the attempt to collect in specie the funds which the Treasury required to conduct the war immediately forced private banks to suspend specie payment. Some way out had to be discovered before the conclusion of the war and the result was the establishment of the National Banking System, which proved itself, according to Hugh McCulloch, Secretary of the Treasury at the conclusion of the war, "a vast improvement upon the systems which it superseded, and one admirably adapted to our peculiar form of government."[1] The national banks aided the government greatly in floating war issues and generally handling the nation's funds. Before the end of the war a sub-

[1] *Report of the Secretary of the Treasury on the State of the Finances for the Year 1866*, p. 16.

stantial part of the Treasury balance was maintained on deposit with the national banks.

Relations with the Money Market.—From that time forward the Treasury was no longer completely independent, but certain of its funds were continuously on deposit with the national banks. The proportion of the Treasury funds so deposited varied greatly from time to time. Each succeeding Secretary of the Treasury had his own views as to the propriety of these deposits under the Independent Treasury law, and the amount of deposits reflected these varying views. Diagram 16 shows over a long period of years where the Treasury's balances were deposited on June 30 of each year. The changes in these figures are important because under the scheme which existed up to the time of the establishment of the Federal Reserve System all balances held by the Treasury itself and not placed in depositary banks represented coin or currency withdrawn from circulation or from the reserves of the banks. In the Independent Treasury we had an agency which from time to time drew money out of the market or poured money into it, frequently without any particular regard to the effect of this action on the money market. In judging the effects of this action it should be noted that the funds so withdrawn from the market or poured into it represented reserve funds—that is, they were specie or currency. And the effect on the credit situation of changing the volume of reserve funds is greater than the effect of changing ordinary bank deposits.

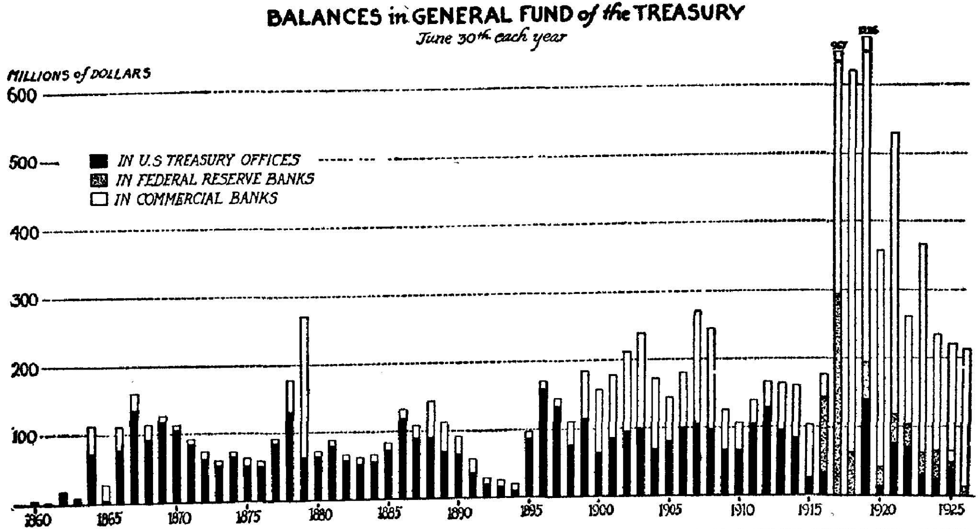


DIAGRAM 16—UNDER THE RESERVE SYSTEM TREASURY BALANCES HAVE BEEN LARGELY KEPT IN COMMERCIAL BANKS WHERE THEY ARE AVAILABLE FOR THE USE OF BUSINESS, INSTEAD OF BEING LOCKED UP IN TREASURY OFFICES.

When the National Monetary Commission made its report in 1911 it included an analysis by Professor David Kinley, of the University of Illinois, of the effects on banking and the money market of the Independent Treasury System. In a careful statistical study Professor Kinley demonstrated how the changes in the balances held by the Treasury Department in its own vaults were immediately effective in lowering or raising the available reserve funds of banks and hence tended to result in abrupt changes in money-market conditions. One can imagine the disorganizing influence on the money market if the huge Treasury receipts and payments of today were made in cash.

We find in the reports of a number of Secretaries of the Treasury as we go back over the years of the Independent Treasury, a recognition that the system was placing upon the Treasury Department great responsibility with respect to the money market. The Treasury was forced into the position of assuming certain functions of a bank of issue. Even as early as 1866 we find the following paragraph in the report of the Secretary of the Treasury. In discussing the course which the Secretary had pursued with regard to the gold in the vaults of the Treasury, he said:

> He has permitted it to accumulate when the use or the sale of it was not necessary for paying government obligations, or to prevent commercial panics, or successful combinations against national credit; and he has sold whenever sales were necessary to supply the Treasury with currency, to ward off financial crises, or to save the paper circulation of the country as far as practicable

from unnecessary and damaging depreciation. For making sales he alone is responsible.[1]

In the reports of the Treasury we frequently find phrases like the following, quoted from the report of the Treasurer for the year 1879:

> It is becoming apparent that should the withdrawal of money continue the market would be affected unfavorably. . . .[2]

Forced to be Financial Dictator.—It was in periods of financial crises that the Treasury Department was most frequently forced to assume the rôle of financial dictator. The Treasury came to the rescue of the money market by depositing Treasury funds in banks, buying government securities in the market, or anticipating interest payments on the debt in practically every one of the important financial crises. It was at times the regular practice of the Treasury to put money out in the fall when credit demands were greatest, and draw it in again in the early winter.

There are many difficulties with this type of dependence of the money market on the Treasury for support. The Secretary of the Treasury is one of the President's political family and policies change with each change of administration. The Secretary, moreover, had a dual responsibility. His primary task was to administer government finance with regard to the provisions of the law and with the maximum of economy and efficiency. To the extent

[1] *Report of the Secretary of the Treasury on the State of the Finances for the Year 1866*, p. 10.

[2] *Report of the Secretary of the Treasury on the State of Finances for the Year 1879; report of the Treasurer*, p. 340.

that his decisions were based on these motives, the effects of his action on the money market tended to be subordinate and secondary. Moreover, as a politically appointed officer, the Secretary of the Treasury was under constant criticism in dealing with individual depositary banks; banks were always bringing to bear political pressure to obtain deposits and the cry of favoritism, of "pet banks," was constantly raised.

To the credit of our Secretaries of the Treasury it must be said that under these difficulties and working under the restrictions to which all government departments are subject, their record is surprisingly good. The trouble was more with the machinery than with the operators.

Middleman Needed.—What was needed was a middleman between the Treasury Department and the banks of the country, a thoroughly trustworthy agent without political affiliations, and with permanent tenure; in close contact with the money market but not engaged in money-making. This is what the Federal Reserve System provided. The Reserve Banks are not government banks because all of their stock is owned by the member banks and six of the nine directors of each bank are elected by the member banks. The public interest is guarded by the supervision over the banks by the Federal Reserve Board, a body appointed by the President. This Board appoints three of the nine directors of each Reserve Bank. The Reserve System, moreover, is removed by the terms of its basic legislation from those profit-making motives which

must necessarily determine the activities of private banks.

A Typical Instance.—The way in which the Reserve System conducts large financial operations for the government without serious disturbance to the money market may be illustrated by quoting from the *Monthly Review* of the Federal Reserve Bank of New York for April 1, 1927 the account of the quarterly tax day operations on and following March 15, 1927. At two or three points explanatory phrases have been added to the account.

Treasury transactions for the country as a whole included the redemption of $660,000,000 of Treasury notes, the largest maturity in some years; the issuance of two new series of certificates of indebtedness, $170,000,000 at 3⅛ per cent for six months, and $314,000,000 at 3¼ per cent for one year; the issuance of $1,355,000,000 of Treasury 3½ per cent three to five year notes in exchange for Second Converted 4¼ per cent Liberty Loan bonds, redeemed with interest to May 15, 1927; the payment of $90,000,000 of interest; the withdrawal of $192,000,000 of government deposits from depositary banks; and the receipt of over $500,000,000 of income taxes. The total turnover of government funds on and about March 15 was well over 3 billion dollars. Much of this, particularly the collection of income taxes, was spread over a number of days and distributed about the country. The first day of the tax period, the 15th of the month, is always the heaviest day, however, and in all such operations between one-third and one-half of all transactions take place in New York. As a consequence, the volume of operations of the New York Reserve Bank on March 15 was one of the largest for any day in its history. The total turnover of funds on that single day, including both transactions for Treasury account and ordinary banking

operations, was close to 2 billion dollars. This total was made up roughly as follows:

Fiscal Agency Operations	
Securities redeemed	$ 343,000,000
Securities exchanged	548,000,000
Subscriptions to new issues	136,000,000
Interest paid	32,000,000
Income taxes collected	8,000,000
Total	$1,067,000,000
Banking Operations	
Checks and other collections	$ 530,000,000
Wire transfers	243,000,000
Currency payments and receipts	28,000,000
New loans to member banks	10,000,000
Member bank loans paid	75,000,000
Total	$ 886,000,000
Total, all Operations	$1,953,000,000

Certain of these very large Treasury operations have no effect on the money market beyond some churning about of funds. They do not involve any gain to the money market or any loss to the market. The exchange of 3½ per cent notes for Second Liberty 4¼'s, for example, neither withdraws funds from the market nor puts funds into the market. Similarly, the issue of new certificates does not affect the money market, since these certificates are largely paid for by deposit credit to the account of the government on the books of the subscribing banks, and there is no withdrawal of funds until the Treasury from time to time makes calls upon these deposits as it has need for funds. The Treasury operations which did exercise an important effect upon the money

market were the redemption of maturing notes, the payment of interest, the call of funds from depositary banks, and the collection of income taxes.

The immediate effect of Treasury operations on March 15 was to pour into the money market about 265 million dollars of funds, because payments by the Treasury to redeem maturing notes and to pay interest were immediately available, whereas the actual collection of income-tax checks by the Treasury was spread over a number of days. (The Treasury obtained the funds to meet this large excess of payments over receipts by selling the Reserve Bank a one-day special certificate of indebtedness which was renewed in reduced amounts for several succeeding days.) The money-market problem, in which the Federal Reserve Bank was concerned, was to prevent this huge gain in funds by the market on March 15 from upsetting the market. The extra funds put into the market by the Treasury were absorbed in the following ways:

1. Member banks in New York City allowed their reserves to run below requirements for a few days prior to March 15, so that they came to March 15 with an accumulated deficiency of 85 million dollars.
2. On March 15, banks repaid the Reserve Bank 63 million dollars of loans.
3. In addition, 18 million dollars of Federal Reserve credit was retired through decreases in holdings of bills and government securities under sales contract.
4. The Reserve Bank made a temporary sale of 60 million dollars of government securities to several member banks.
5. Maturities of $25,000,000 of securities from the System's holdings were not replaced until the following week.

By these means the greater part of the 265 millions of excess funds was withdrawn from the market and as a consequence there was no serious overage of funds in

the market. Money rates in the stock exchange market only went below 4 per cent for a few hours on March 16; on March 17 and 18 (as income-tax checks were collected) the member banks resold to the Reserve Bank the securities they had purchased, and on March 18 they found it necessary to borrow 117 million dollars from the Reserve Bank to bring their average reserves up to requirements. Thus money conditions were maintained at a stable level during the week.

The Reserve Bank's temporary sale of government securities to the member banks was of interest partly because it took a new form. Temporary sales of securities have frequently been made in the past at tax periods to prevent unduly easy money, but such sales have usually been made from the securities in the System's open market account, which are lodged in New York. The sale during the March tax period took the form of the sale of participations in the special one-day certificates of indebtedness, which the Treasury issued to the New York Bank to cover the funds which it borrowed from the New York Bank to meet its temporary excess of expenditures over receipts.

A complete picture of all shifts in funds between the Federal Reserve Bank and the market during such a time as the tax period would require more space than this chapter allows. This outline sketch indicates the way in which the intimate relation between the Federal Reserve country-wide mechanism and the money markets of the country, together with the power of the Reserve Banks to extend additional credit to the government or to member banks when necessary, provides the means by which Treasury operations may be handled smoothly and effectively and without disturbance to the markets.

Another reference to Diagram 16 will show that even with the present gigantic size of government

financial operations the Treasury is today able to operate with a smaller balance than in many of the earlier years when the volume of operations was small in comparison.

War Service.—One reason for giving such a detailed account of quarterly tax-day operations is that these operations are typical of the procedure which was followed in carrying through the vast amount of war financing. During the war it was the Federal Reserve Banks which organized the sale of Liberty bonds and Victory notes and of short-term certificates of indebtedness, and it was these banks which handled the proceeds and paid them out again from time to time at the direction of the government. It was the power of the Federal Reserve banks to extend credit which enabled member banks, and through them the public, to subscribe as they did to the war loan issues.

These things are all a matter of current record and vivid memory, and it is perhaps only important to point out here the fact that these huge operations were carried forward without any disorganization of the money market. The secret of the smoothness with which these operations were conducted in the money market was that funds were never allowed to pile up in the Federal Reserve Banks or the Treasury, but were only called in to be paid out immediately. When banks made payments for Liberty bonds they took the form of deposits to the credit of the Federal Reserve Banks as fiscal agents of the Treasury, and the operation of buying bonds was in the main simply a transfer of deposits on the books of the banks from the ac-

counts of customers to the account of the Treasury. The government drew down its balance only as the funds were needed to be paid out, and by these payments for services, munitions of war, loans to the Allies, etc., it created new balances to the accounts of bank customers. Back of all these operations stood the Federal Reserve Banks ready to make advances to the member banks whenever necessary.

A second principle which was important in maintaining stability in the money market during and after the war was that, except for a single three months' loan of $50,000,000 in April, 1917, and for occasional issues of special one-day certificates of indebtedness, the Treasury to its everlasting credit did not borrow directly from the Reserve Banks. To the extent that Federal Reserve credit was required to finance the war, it was created by borrowing on the part of member banks, with the obligation which that involved for the eventual return of the loan, or it took the form of open market purchases by the Reserve Banks of commercial obligations which were saleable in the open market. The Reserve Banks were thus in a position at all times to exercise an influence toward stability.

This principle of independence of the Reserve Banks from direct Treasury borrowing was a sound principle to follow and saved our banks of issue from many of the troubles that have overtaken certain of the European banks of issue, which have found themselves under government domination and out of contact with the money market.

It is illuminating to try to visualize what the

situation would have been if the Treasury had borrowed directly from the Federal Reserve Banks. Suppose that at the maximum in 1920 $3,000,000,000 of the total of $3,400,000,000 credit extended by the Reserve Banks had been lent directly to the Treasury instead of to the member banks. Would the Treasury have repaid the Reserve Banks rapidly enough to avoid continued serious inflation? Treasury repayments would have depended upon the Treasury budget and political decisions, rather than on the needs of the country for credit. There would have been every temptation to consider borrowings from the Reserve Banks as a more or less permanent part of the national debt. The Reserve System might have been drawn into a maelstrom of dispute and controversy which might have wrecked it.

The principle that was followed, of not lending directly to the Treasury but lending to banks, resulted in a semi-automatic liquidation of Reserve Bank credit as prices fell and gold was imported. The banks used all surplus funds to pay off their indebtedness, and the volume of Reserve Bank credit was adapted to changes in credit requirements. Such a result would have been most difficult if not impossible if the debt had been owed by the government.

The importance during the war period of these principles which have just been outlined is realized most vividly when they are reviewed in connection with the figures for the size of the war financing. Its huge volume is summarized in Table 9.

Subtreasuries Taken Over.—When the Federal Reserve Banks first started operations, the Treas-

TABLE 9—TREASURY ISSUES SOLD THROUGH FEDERAL RESERVE BANKS

(In millions of dollars)

Year	Liberty and Victory Loans	Treasury Bonds	Treasury Notes	Certificates of Indebtedness	Total
1917.....	5,797	....	....	3,881	9,678
1918.....	11,140	....	....	10,742	21,882
1919.....	4,495	....	....	11,247	15,742
1920.....	....	....	....	3,940	3,940
1921.....	....	....	702	2,910	3,612
1922.....	....	764	2,511	1,427	4,702
1923.....	....	....	1,035	1,264	2,299
1924.....	....	757	....	985	1,742
1925.....	....	290	....	1,048	1,338
1926.....	....	495	....	608	1,103
Total..	21,432	2,306	4,248	38,052	66,038

ury continued to maintain Subtreasury offices in nine important cities. In succeeding years the functions of these offices were gradually transferred to the Federal Reserve Banks. During the years 1920 and 1921, by Act of Congress, the remaining Subtreasury functions were taken over by the Reserve Banks and the Subtreasuries closed. Thus the Federal Reserve Banks are now the only sources of supply for coin and currency, outside Washington except for national bank notes initially circulated by national banks. With these exceptions all the money in circulation is distributed through the Federal Re-

serve Banks. Old money is retired from circulation and new money is put out. The Treasury is saved not alone the expense of operating the Subtreasuries, but also the cost of carrying so large a working supply of coin and currency. The 38 offices of the Federal Reserve System provide a wider distribution of facilities for conducting Treasury business.

Open Market for Treasury Certificates.—A further interesting service which the Federal Reserve Banks have been able to perform for the Treasury and for the money market lies in the aid they have given to the establishment of an open market for short-term Treasury issues in the form of certificates of indebtedness or Treasury notes. During the war the Treasury found it imperative to finance in some organized way the temporary advances it required pending the receipt of taxes or the receipt of returns from Liberty Loan sales. As a consequence, there were sold to banks and private investors short-term securities running for from one to twelve months.

As the war progressed it was necessary to issue larger and larger amounts of these securities and they began to accumulate in banks. To aid in a wider distribution steps were taken to establish an open market for these securities. Dealers were encouraged to buy and sell Treasury certificates and in so doing were given the support of the Federal Reserve Banks, which adopted a policy of standing ready to purchase Treasury certificates from dealers from time to time whenever the market became congested or money rates rose to such high points that dealers could not secure the call loans they required to carry their portfolios of certificates at

rates approximating the rates borne by the certificates.

The way this worked out was that when call money rates were temporarily high or when the supply of Treasury securities was much larger than the demand, dealers sold some of these securities to the Reserve Banks under an agreement to repurchase them within fifteen days. The dealers repurchased the securities as soon as the temporary condition was passed, usually well before fifteen days elapsed. Even now the market requires this type of support from time to time for a few days. Through this arrangement it is possible for dealers always to stand ready to buy and sell certificates at the market price.

The establishment of this open market stimulated the use of Treasury certificates as means of employing surplus funds. The assurance of a ready sale at all times enables banks and others to use Treasury certificates and notes as secondary reserves, which may be liquidated whenever funds are required. The open market for Treasury certificates greatly aids the Treasury in handling its short-dated debt, and enables it to secure better terms for its sale.

SUMMARY

1. The Reserve Banks provide a trustworthy banking agency for the use of the government, with which the Treasury may deal without fear of accusation of favoritism.
2. It is an agency in constant contact with the

money market, with offices in all parts of the country, and performs work for the Treasury practically without charge.

3. The presence of the Reserve System relieves the Treasury of much of the direct responsibility which it formerly carried for the money market. It is no longer necessary for the Treasury Department to make special deposits or purchases of securities for the purpose of relieving business crises, nor again is it necessary for the Treasury to depend upon some syndicate of bankers to rescue the Treasury itself in periods of emergency.
4. The presence of the Reserve System as a credit reservoir for the adjustment of the volume of credit to business needs, not only relieves the Treasury from what had been one of its most onerous burdens, but provides in addition a credit reservoir available to support the credit needs of the Treasury in emergencies.
5. The result of the presence of the Reserve System is to make the Treasury more truly independent of the money market than was ever the case under the so-called Independent Treasury System.

CHAPTER VII

The New York Money Market

THE New York money market is the national market for surplus funds. As the leading money market of the country, it is the center towards which the idle money of all sections gravitates to find employment, pending the time when it is needed. Banks and large business concerns all over the country which have funds temporarily idle because of seasonal variations in the demand for funds or for other reasons, send these funds to the New York money market. The funds are there kept on deposit with banks; invested in short-term securities such as bills, Treasury certificates, or other short obligations; or are lent in the stock exchange money market for a definite period as time money or on a day-to-day basis as call money.

The distinctive feature of this use of funds is that the funds are available when they are needed, either at a specified time or, in the case of call money or money invested in bills or Treasury certificates, on a day's notice at any time. Call loans can be called and bills and Treasury certificates can be sold whenever the funds are needed. The money in the money market may thus be thought of not simply as surplus funds, but as the secondary reserves of banks and business all over the country.

In these days of keen competition and narrow

margins of profit, banks and business concerns find it necessary to keep their funds as fully employed at interest as possible. Ten million dollars lying idle for a single day costs as much as a year's work of a clerk or about 300 clerks for one day; and the difference between profit and loss may be found in keeping all available funds employed. The money market provides a place where funds may be put to work for a week or even a day and still be available to meet the foreseen or the unforeseen need of the lending bank or corporation.

The importance of the money market does not lie in its size, because the total amount of funds in the market is small in comparison with the total banking funds of the country. The importance lies rather in the liquidity of the market, in its capacity for furnishing cash at a few hours' notice. What a bank balance is to the individual the money market is to the country's credit system. Both represent ready cash available for immediate needs.

Since the New York money market employs funds from all parts of the country, it reflects changes in the need for funds from any quarter. Increases in the use of funds for business and trade draw funds from the New York market, and decreases in such use pour funds into the New York market. When the wheat crop is being harvested, when Christmas shopping creates a need for more currency, or when factory payrolls increase, funds are drawn from New York. But when winter dullness settles over the farms, when Christmas currency returns to the banks, or when the factories begin to reduce payrolls, then funds flow back to New York. In recent years the

New York market has reflected not only the changing financial needs of agriculture and business in this country, but has reflected foreign conditions as well because considerable amounts of foreign funds have found employment here.

One result of the wide distribution of ownership of funds in the New York money market is that they are in constant movement, for there is almost never a time when some need for funds is not arising from one quarter or another. The rapidity of movement of funds in the money market may be seen in the statistics for the velocity or rate of turnover of bank deposits. These figures show that bank deposits in New York City have a rate of turnover of about eighty times a year, whereas the rate of turnover in other large cities is only about half as great. This rapid movement of funds puts to the test the organization of the money market.

Small movements of funds sometimes have large effects in the market. A transfer of as little as $25,000,000 from New York may cause an increase of ½ per cent in the call-loan rate. For the money market is a point at which adjustments take place between the country's supply of and demand for funds. A transfer of $25,000,000 from New York may be the indication that the country's supply of funds is short of the demand at the rates which have been prevailing. In the New York market we are dealing with what economists call the marginal supply and the marginal demand, which are the first to show any changes in conditions.

In financial panics in this country it has been in the New York money market that the first signs

have appeared, just as in England it has been in London that financial crises have centered. Year in and year out the great bulk of all ordinary financial operations throughout the country is carried on smoothly and quietly, with the supply of funds taking care of the demand without question. Trouble only comes with the extra demand, or the extra supply, and the money market is the place where extra supply and extra demand make their first appearance. The country's financial stability depends not a little on the capacity of the money market for making a smooth adjustment to the new condition when extra supply or extra demand begins to appear. If at any time it becomes impossible for out-of-town lenders to convert instantly into cash the funds they have placed in the New York market, the result is apt to be a money panic.

Place of the New York Banks.—New York commercial banks have several kinds of relationships with the money market. In the first place, these banks are large investors in the money market. They keep about a billion dollars in the stock exchange money market. They keep substantial but smaller amounts employed in bills, Treasury certificates and notes, and commercial paper.

In the second place, the New York banks act as agents for out-of-town banks, corporations, and individuals who employ funds in the money market. When the Tenth National Bank of Muncie, Indiana, wants to buy commercial paper or put funds out on call, it usually transfers the funds to its New York correspondent. The amounts of out-of-town funds placed in the market in this way are fre-

quently larger than the amounts placed for the account of the New York banks themselves. For example, the figures reported by New York City member banks at the end of 1926 show that their loans to brokers and dealers for their own account averaged $900,000,000, whereas their loans of this character for the account of out-of-town banks averaged $1,050,000,000. Moreover, the New York City banks had on deposit from other banks about $1,000,000,000.

In the third place, the New York City banks are bankers for the money market. The market keeps its funds on deposit with them. When a dealer secures funds he deposits them in one of these banks. When he makes a payment he does it with a check on one of them. The deposits of New York banks thus constantly reflect money-market operations.

Any extra demand for or supply of funds is thus registered in one way or another in the condition of the New York banks, and the elasticity and stability of the market depend on the reserves of these banks.

Suppose the wheat crop is unusually large and in order to pay off extra harvesting help the banks of the West call $25,000,000 of call loans in New York. The procedure would be about as follows: When brokers Smith & Jones, or Peters & Hall, who were borrowing this money from out-of-town lenders for the use of their customers, get notices calling their loans, they probably borrow the amount from New York City banks and pay off their called loans. As the funds are transferred to the West, reserves

of New York banks are correspondingly reduced. Or suppose the banks in the West, instead of calling loans, sold securities in New York. They would probably be paid by checks drawn on New York City banks, with the same consequence in reducing the reserves of those banks. No matter what form an outside withdrawal of funds from the market takes, it usually results promptly in a reduction of the reserves of New York City banks. If this process continues it tends to result in higher money rates and a gradual liquidation of money-market loans, and frequently a reduction in security prices. These changes eventually reduce both the deposits and the reserve requirements of New York City banks. But the immediate result is to reduce only the actual reserves of these banks. They bear the brunt of shifts of funds to and from the market.

Elasticity Before 1914.—In the days before the Federal Reserve System the surplus reserves of New York banks were the best measure of the country's ability to deal with any financial emergency, because they showed the extent to which the money market could be drawn upon to meet needs for funds in any part of the country. There were, it is true, other possible means of meeting serious crises, such as the import of gold from abroad, Treasury deposits of gold in the banks, or the issuing of clearing house loan certificates; but the reserves of New York banks, and to a lesser extent of banks in other cities, were the first line of defense. When these reserves were reduced to the legal minimum, and there were no longer any surplus reserves, then the credit situation became strained. There

was still plenty of money in the banks, but it could not be used because the law prescribed a legal minimum below which reserves should not go. There was no machinery by which these reserves could be either used with safety or increased with promptness.

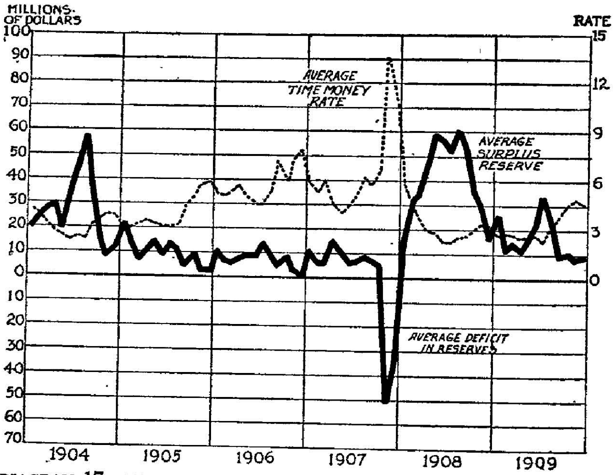


DIAGRAM 17—BEFORE THE RESERVE SYSTEM THE TIME-MONEY RATE WAS CLOSELY RELATED TO THE SURPLUS OR DEFICIT OF RESERVES OF NEW YORK CITY BANKS.

The close dependence of money conditions on bank reserves is illustrated by Diagram 17, in which one line shows the average monthly surplus or deficit of reserves of New York City banks, and the other line shows the average monthly rate for time money. When there were large surplus reserves, money rates were low; when reserves were low, money rates were high.

One impressive feature of the diagram is the narrowness of the margin of reserves. For many months average surplus reserves were under $10,000,000. In November, 1907, an average deficit of $50,000,000 in reserves was accompanied by soaring money rates and by temporary suspension of specie payments in many parts of the country.

Under these conditions one of the most valuable indicators of the country's credit condition was the Saturday report of the New York Clearing House banks, which showed their surplus reserves. These surplus reserves were the principal basis for any elasticity which the country's banking system possessed.

Elasticity Today.—The fundamental change which the Federal Reserve System has made in this situation is to shift much of the burden of meeting the fluctuations in the demand for credit from the reserves of the member banks to the Reserve Banks, which through the strength of their holding of pooled reserves and through their power of note issue and deposit expansion can provide almost any extra funds required.

The change which has taken place may be illustrated by Diagram 18, showing for recent years the same data as Diagram 17, with an additional line. There is now practically no fluctuation in the average surplus reserves of clearing house banks. Instead, the adjustment to changes in the supply of and demand for credit takes place in the loans of the Reserve Bank. Credit demands which in the old days drew heavily on bank reserves now lead to increased Federal Reserve loans instead.

Another effect of the establishment of the Reserve System has been to divert from the New York market some of the adjustments of marginal funds. Member banks in all parts of the country may now meet extra demands for funds by borrowing at their local Reserve Bank and use extra sup-

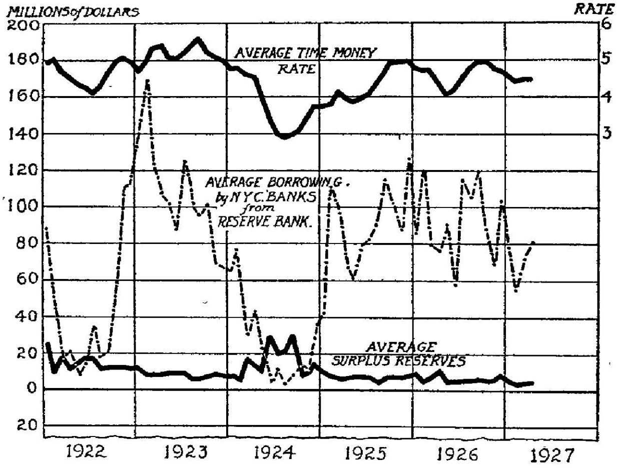


DIAGRAM 18—SURPLUS RESERVES OF NEW YORK CITY BANKS NOW SHOW LITTLE FLUCTUATION AND MONEY RATES ARE RELATED TO THE AMOUNT OF BANK BORROWING FROM THE RESERVE BANK.

plies of funds to pay off any such borrowings. Moreover, with the support of the Reserve Banks local money markets of increasing importance are developing in certain of the Federal Reserve cities.

While these changes have diverted many transactions from New York to other centers and have made the country's finance somewhat less dependent on New York, the New York money market remains

the country's principal center for the use of surplus funds, and for the adjustment of banking reserves. The precise methods by which the money market gains elasticity and stability through the operations of the Federal Reserve Bank of New York are therefore of interest.

Access to the Reserve Bank.—The money market and the Federal Reserve Bank of New York are

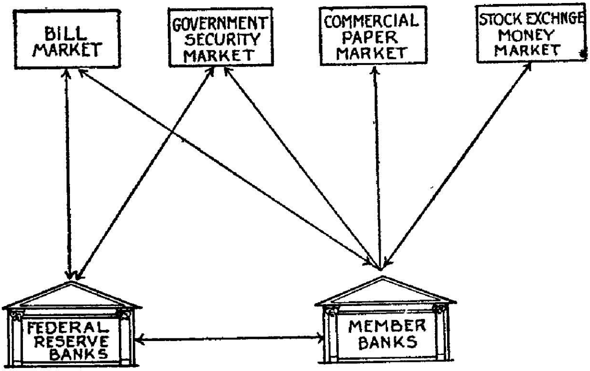


DIAGRAM 19—THE BILL MARKET AND THE GOVERNMENT SECURITY MARKET HAVE DIRECT APPROACH TO THE RESERVE BANKS, BUT THE OTHER PRINCIPAL MONEY MARKETS HAVE NO SUCH DIRECT ACCESS.

connected by several channels of communication. Diagram 19 is an attempt to illustrate these channels.

Of the four principal markets which make up the money market, two have direct access to the Reserve Banks. Under the terms of the Reserve Act, the Reserve Banks may buy bills (bankers' acceptances) and government securities in the open market, but they cannot buy commercial paper or make

loans in the stock exchange money market. The Reserve Banks can also buy short-time municipal warrants issued in anticipation of taxes and obligations of the Federal Farm Loan System, but such purchases have in practice been so small that this market has not been included in the diagram.[1]

It is through the member banks that the money market has its principal connection with the Reserve Banks. The amount of Reserve Bank funds which goes directly into the money market is small compared with the amount which is advanced to member banks and reaches the market indirectly. The member banks pass on to the Reserve Banks the securities dealt in by three of the four money markets: bills, United States Government securities, and commercial paper. They sell bills to the Reserve Banks; they borrow with bills, United States securities, or commercial paper as collateral; or they rediscount bills or commercial paper. In addition, they rediscount or secure advances upon their customers' commercial paper. Non-member banks sell bills to the Reserve Banks.

[1] In this connection mention should be made of a new informal money market which has developed in recent years, the market for Federal funds. A bank which finds itself with surplus reserve deposits at the Federal Reserve Bank frequently sells these funds to some other bank which is deficient in its reserves and thus obtains funds to make its reserves good without borrowing at the Reserve Bank. Federal funds are different from other funds because they represent immediate cash that day at the Reserve Bank, whereas an ordinary bank check is not cash until it has gone through the clearings the following morning. The buyer of Federal funds pays for them with a check which will be collected through the clearings the following day. The transaction amounts to buying today's money with tomorrow's money and paying interest for a day. The market for Federal funds adds to the fluidity of the money market; it helps demand and supply to become adjusted rapidly. Federal funds are as a rule

It should be noted that in all but one of these types of transactions by which the markets or banks secure Federal Reserve funds, the initiative is taken by the dealer or the banker. It is only in the purchase of United States Government securities that the Reserve Banks ordinarily take the initiative, and even such purchases if made under a repurchase agreement are made on the initiative of the dealers in government securities who require assistance in carrying their portfolios.

Another interesting feature of the relationship between Reserve Bank and money market is that in certain of the transactions in bills and government securities the New York Reserve Bank acts as the agent of other Federal Reserve Banks. A considerable part of the holdings of acceptances and government securities of all the Reserve Banks is purchased in New York and distributed to all Federal Reserve Banks through the medium of an Open Market Investment Committee consisting of the governors of five of the Reserve Banks.

Through these various channels there has developed an organic connection between the New York money market and the Reserve System. The operations of the Reserve Bank of New York, and in lesser degree of the other Reserve Banks, have come to reflect money-market changes in much the same way as the reserves of New York City banks formerly reflected such changes. Today when $25,000,000 is withdrawn from New York to meet

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bought and sold by individual negotiation between banks, although some of the dealers in bills and securities also deal in Federal funds.

a demand for currency for harvesting, the demand often falls as before on the money market and through the market on the New York City banks. But these banks no longer rely solely on their surplus reserves in meeting such a demand. They can borrow at the Reserve Bank.

This extra demand for funds can be met with much less strain on the credit situation than in the days when bank reserves bore the brunt of any increase in demand. Increases in borrowing at the Reserve Bank do have, it is true, some effect upon the money position. Funds from the Reserve Bank have to be paid for at the discount rate and the use of additional Federal Reserve funds is frequently accompanied by some firming in money rates, as was the putting to use of surplus reserves. The principal difference between the two operations lies in their possible extent. In the old days there were rigid and not far distant limits to the reserves available; now the mechanism of the Reserve System provides for a much larger possible expansion. It gives much greater elasticity while providing also restraints against too great expansion. This elasticity results in much more stability of rates and practically eliminates the fear of money panic which could never be wholly out of mind in the old days.

The close relationship between money-market movements and the Reserve Bank may be illustrated by a comparison of the day-to-day fluctuations of the call-loan rate, the most sensitive index of money-market conditions, and the changes in the amount of Reserve Bank credit in use. This comparison is made in Diagram 20. It shows that when

money is in demand, as shown by high call-loan rates, the banks and the market draw funds from the Reserve Bank, and the amount of Reserve Bank credit in use is increased. Conversely, when the supply of funds increases, as shown by low call rates, funds are returned to the Reserve Bank. Just as the country as a whole is constantly adjusting its credit supply to its needs through the New York market, so the New York market is daily adjusting

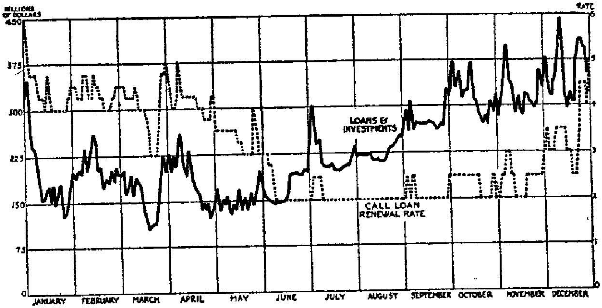


DIAGRAM 20—DAILY CHANGES IN MONEY CONDITIONS IN THE NEW YORK MARKET DURING 1924 WERE REFLECTED DIRECTLY IN THE LOANS AND INVESTMENTS OF THE FEDERAL RESERVE BANK OF NEW YORK.

its supply to the demand through the Reserve Banks.

The character of Federal Reserve transactions with the banks and the money market, which consist primarily of operations for the adjustment of reserve position, is revealed by the rapidity with which loans are made and paid off. The average amount of bills and securities (including loans to member banks) held by the Federal Reserve Bank of New York during 1925 was $287,000,000. The

total amount of bills and securities acquired during the same period was $19,900,000,000. Thus the average loan or investment was for only five days. The average number of days for which different types of paper were held was as follows:

Discounts and advances......	3 days
Bankers' bills................	15 days
U. S. securities..............	50 days

The Reserve Bank is thus constantly advancing funds to the member banks and to the market and, in turn, constantly being paid off.

A more detailed statistical analysis of the interaction between the New York Reserve Bank and the money market will follow in a later chapter, after a more detailed discussion of the bill market.

SUMMARY

1. The New York money market is the national market for surplus funds, the marginal market where supply and demand meet.
2. Before the Federal Reserve System the elasticity of the money market depended largely on the surplus reserves of New York City banks; an additional call for funds led to withdrawals of these reserves and a surplus of funds increased these reserves. Money rates reflected directly the condition of these reserves.
3. The margin of surplus reserves was often narrow and the fear of financial panic because of money stringency was never wholly out of mind.
4. Under the Reserve System the burden of meeting

the fluctuations in the demand for funds has been shifted from the reserves of member banks to the Reserve Banks, whose resources are adequate to meet almost any emergency.

5. Access of the money market to the Reserve Banks is largely through the member banks, but in part also through the markets for bills and government securities. The average duration of a loan or investment of the New York Reserve Bank is only five days.
6. Just as the country as a whole is constantly adjusting its credit supply to its needs through the New York market, so the New York market is daily adjusting the supply to the demand through the Reserve Banks.
7. The presence of the Reserve System gives greater elasticity to the supply of funds and stability to the money market and removes the fear of money panics.

CHAPTER VIII

The Bill Market

ONE of the four money markets described in the preceding chapter has a peculiarly intimate connection with the Reserve System, and that is the bill market, or the bankers' acceptance market. The "bankers' acceptance," or "bankers' bill," or more familiarly the "bill," is a comparatively new member of the society of credit instruments in this country. The bill of exchange was used in this country before the Civil War, but its use was then practically discontinued and the law did not thereafter permit our banks to "accept" bills. The bankers' acceptance is therefore an adopted child. It did not grow up from gradual and unconscious beginnings, as do most of our institutions, but it was taken over from Europe at the same time that the Federal Reserve System was inaugurated.

The adoption of the bankers' bill was a matter of curiously unanimous consent. In the years from 1908 to 1913 banking reform was a major topic for congressional investigation and many bills were prepared dealing with the topic. Practically every one of these bills included some provision for establishing in this country a market in which acceptances might be bought and sold as they are in the discount market in London. In all the discussion surrounding the consideration of these bills and the

debate over the Federal Reserve Act, there was hardly a dissenting voice to the proposal for establishing a discount market. Hence the Federal Reserve legislation granted to banks in this country the power to accept drafts drawn upon them. These accepted drafts were made eligible for purchase by the Federal Reserve Banks, and thus the necessary foundations were laid for a discount market.

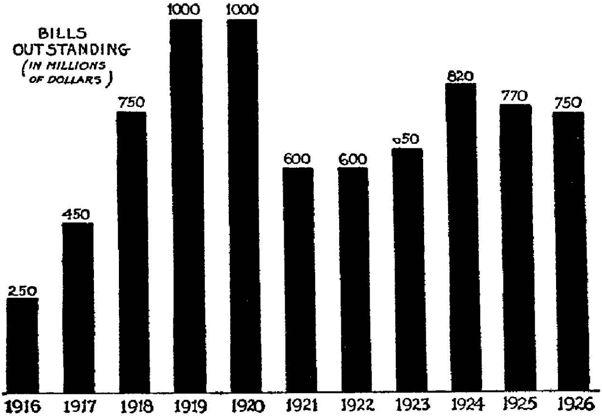


DIAGRAM 21—GROWTH OF THE BILL MARKET IS SHOWN BY THE ESTIMATED AMOUNT OF BANKERS' BILLS OUTSTANDING IN THE UNITED STATES ON DECEMBER 31 OF EACH YEAR.

In the past twelve years the adopted infant has been growing up in the midst of war and disturbed world credit conditions. Year by year the numbers and kinds of bills drawn have been increasing, and the market for bills has been expanding.

Size of Market.—The rapid growth of the volume of bills drawn is shown in Diagram 21, which gives

the estimates by the American Acceptance Council of the total amount of bankers' bills outstanding at the end of each year. Under the stimulus of post-war trade activity a volume of business was reached in 1919 and 1920 of about one billion dollars. Price decreases and recessions in trade in 1921 and 1922 were accompanied by reductions in the value of bills in the market, but since that time there has been a recovery and the amount outstanding at the end of 1926 was about $750,000,000. The dollar amount is much affected from year to year by changes in prices of basic commodities. The actual volume of transactions financed through the bill market is probably larger now than in any preceding year.

Perhaps the size of the bill market may best be realized by comparing it with the commercial-paper market. The commercial-paper market has been in existence in this country for more than fifty years as a well-recognized means for commercial financing. In recent years the Federal Reserve Bank of New York has undertaken to collect figures for the volume of commercial paper outstanding and to that end has received each month reports from twenty-six of the dealers who handle a large percentage of the amount of paper sold in this country. These figures show a total of about $525,000,000 of paper outstanding at the end of December, 1926. Allowance should also be made for about 10 per cent, or $52,000,000, additional handled by dealers not reporting. So, as nearly as can be estimated, the amount of financing now done through the bill mar-

ket is larger than the amount carried on through the long-established commercial-paper market.

Another interesting comparison may be made between the size of the bill market in this country and the size of the London bill market, which has been for many years the recognized center for financing world trade. Before the war it was estimated by a number of competent authorities that there were currently outstanding through the London market something like 325 million pounds sterling of bankers' bills, or a little over $1\frac{1}{2}$ billions of dollars. Since the war the amount of bills in the London market has probably been smaller, partly due to the fact that some transactions formerly financed in sterling are now financed in dollars, and perhaps partly due also to the large volume of Treasury bills in the market available as a form of investment. Mr. D. Spring-Rice, of one of the important London discount houses, has estimated (*Bankers Magazine*, London, March, 1923) that in January, 1923, there were only about $800,000,000 to $900,000,000 of sterling bills outstanding. Since then the amount has probably increased somewhat.

Thus the bill market in the United States in the few years of its existence has grown to a position of real importance, not only in the money markets of this country, but in fact in the money markets of the world. One may then appropriately ask what the results of the establishment of this market have been for trade and for finance.

Nature of the Bank Bill.—There is no field of finance more deeply buried in technical jargon than the bill market, partly because there is hardly any

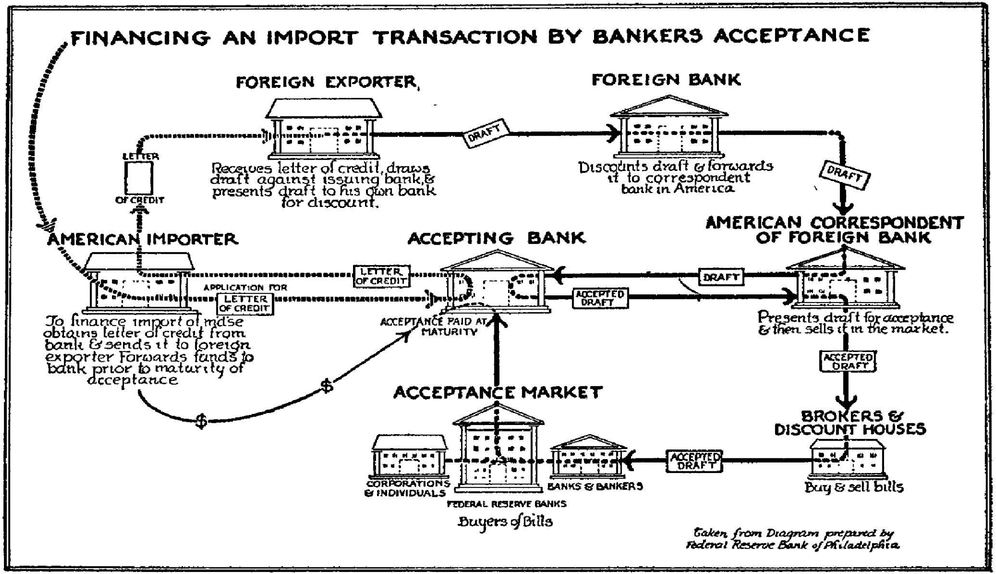


DIAGRAM 22—ILLUSTRATION OF THE FINANCING OF AN IMPORT TRANSACTION BY A BANKERS' ACCEPTANCE.

more complicated series of transactions than some of those which involve bank acceptances. There are many different kinds of bank acceptances, and the instrument itself appears in many languages and in many forms.

The essence of the simplest form of the transaction is that a seller of goods wants to get money before a buyer is ready to pay. The buyer's bank, however, gives the seller a guaranty of payment on a given date and this guaranty can be sold. The guaranty is in the form of a draft on the buyer's bank on which the bank has put its stamp "accepted." The accepted draft has a ready sale to banks or others who want a short-term investment with a bank guaranty. Thus the seller can get his money in a transaction before the buyer is ready to pay. This is particularly important when buyer and seller are many miles separated and it is several weeks before the buyer receives his goods from the seller. In import and export trade the bill covers the length of the voyage. The consignee ordinarily will not or cannot pay until the goods arrive. The seller therefore draws a bill of exchange and realizes on it from his own banker, who has the bill accepted by the buyer's bank and sells it. There are many forms of bank acceptances and detailed regulations as to their use, but they are all variations of the form just outlined. A typical acceptance transaction is outlined in Diagram 22.

Who Uses Bills?—Bankers' acceptances are used primarily to finance the movement of exports and imports, although large amounts are also drawn against readily marketable staples held in ware-

houses here and abroad, and some are drawn for the domestic movements of goods. This is illustrated in Diagram 23, which shows a classification of the general purposes for which bills outstanding at the end of last year were drawn.

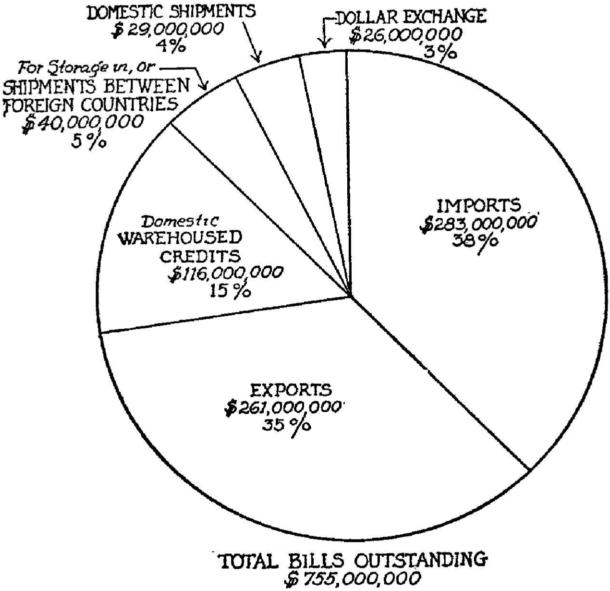


DIAGRAM 23—TRANSACTIONS FINANCED BY BANKERS' BILLS OUTSTANDING AT THE END OF 1926.

An investigation made by the Federal Reserve Board enables us to say still more precisely how bills are being used to finance trade. The Board made a detailed classification by commodities of all the bills purchased by the Reserve Banks (exclusive

of those acquired under repurchase agreement) in the year 1926. These bills purchased by the Reserve Banks may be considered as representative of all the bills outstanding. The analysis shows that more than one-third of these acceptances were

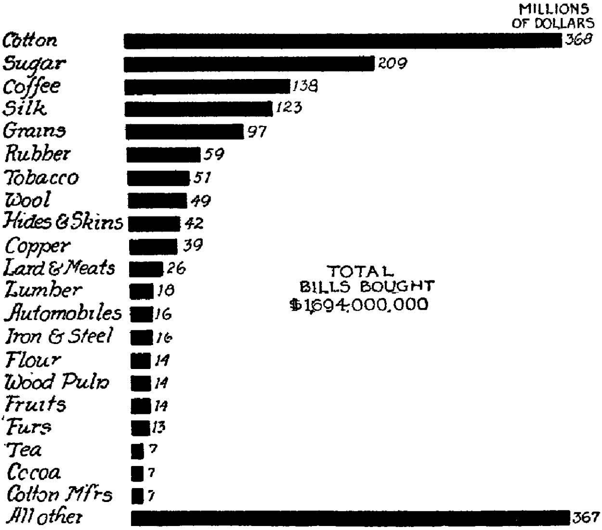


DIAGRAM 24—FARM PRODUCTS RANK HIGH IN THE LIST OF COMMODITIES THE MOVEMENT OR STORAGE OF WHICH WAS FINANCED THROUGH BILLS PURCHASED OUTRIGHT BY THE RESERVE BANKS DURING 1926.

drawn to finance the movement or storage of American farm products. A large part of the total was drawn to finance the export or storage of a single commodity—cotton; the second largest commodity was sugar; then came bills drawn to finance the movement or storage of coffee, silk, and grains. Diagram 24 shows the figures in graphic form.

The type of transaction financed through the bill market is in large measure different from the trade activity financed through the commercial-paper market. As contrasted with the figures shown in Diagram 24, it is estimated by the National Credit Office that about one-third of the concerns using commercial paper are in the textile industries, while the next largest groups deal in foodstuffs, metals, leather, and lumber.

The commercial-paper market generally tends to finance domestic manufacture and trade, whereas the bill market finances more largely the movement of raw materials and foodstuffs, and particularly their movement in foreign trade. Commercial paper is issued against the general credit of the concerns using the market, whereas each bankers' acceptance represents specific commodities in storage or transit.

From these differences there arise certain interesting differences in the activity of the two markets. Financing in the commercial-paper market is rather evenly distributed throughout the year, but tends to be most active in the spring or early fall, when spring and fall trade are most active; on the other hand, the bill market is highly seasonal and experiences its largest volume of financing in the late fall and the winter, when the movement and storage of crops is largest and when the largest exportation of cotton is under way.

Service to Trade.—The most direct and obvious effect of the establishment of a bill market in this country has been its benefit to those who deal in the commodities listed in Diagram 24. The bill

market furnishes a more satisfactory means than has before been available for financing the movement of these commodities.

Domestic transactions now handled through the bill market were previously financed largely by direct loans at banks, frequently with some difficulty and at higher rates. Through the bill market co-operative marketing associations and cotton and grain dealers are able to tap the supplies of funds in the central money markets instead of relying wholly upon local banking facilities.

For example, the New County Farmers' Association desires to hold 2,000 bales of cotton in storage for ninety days before selling. In the early fall when demands for funds for picking and transportation are heavy, the local New County banks may not be in a position to make the required loans on the cotton, even at high rates. But acceptance credit, secured by the cotton in independent warehouses, can be obtained from one or more well-known accepting banks. The association draws drafts on these banks payable in ninety days and takes them to the banks, together with the receipts of the storage warehouse, and the banks write "accepted" across the face of the drafts. These banks thus become liable for the amount of the drafts and hold as security the warehouse receipts. For their service and the loan of their credit the accepting bank charges about 1 to 2 per cent per annum. The association holds accepted drafts, which may be sold readily in the nearest money center at a discount today (January, 1927) of about 3¾ per cent per annum. Thus the association obtains for its

members the immediate use of funds at a moderate rate. Without the bankers' acceptance the funds would be more expensive and would frequently be difficult to secure. The acceptance is a means of breaking down barriers between country districts and central money markets.

The country's central money market thus shares with the local bank the financing of agriculture. The planting and harvesting of the crop are financed by local banks which in turn lean upon the regional Federal Reserve Bank. The storage of the crop, and its movement to market, may be financed, through the acceptance by the central money market, which in its turn leans upon the Federal Reserve Bank of New York, acting for itself and the other Reserve Banks in the money market.

For the exporter or importer the American bill market is a great convenience. Formerly it was usually necessary in financing exports and imports to make arrangements to draw drafts on some English or continental bank. The trader had to take the risk of loss on fluctuations in sterling exchange, or else incur the expense of buying forward cover. The European bank collected the commission and discount. It is now possible to carry forward the whole transaction with an American bank. There is no risk of exchange and the American bank earns the commission and discount formerly collected by others.

Who Buys Bills?—The advantage of the bankers' acceptance to the business man or farmer whose transaction is financed is perhaps more obvious than the advantage to the buyer of bills. Why should

anyone buy bills at 3½ per cent when he can buy commercial paper at 4¼ per cent or get 4 to 4½ per cent in call loans? Part of the answer may be found in an inspection of the safety and convenience with which funds may be employed in the different short-term money markets.

We now have in this country, as was indicated in Chapter VII, four markets in which surplus funds may be employed for short periods:

1. Stock exchange money market.
2. Commercial-paper market.
3. Treasury certificate market.
4. Bill market.

The first two of these markets have been here for many years; the latter two are developments of the past ten years. Generally the rates in the first two of these markets are near together and from ½ per cent to 1 per cent above the rates in the third and fourth. The Treasury certificate and bill markets justify low rates in two particulars. First, they offer unusual security. The Treasury certificate is a government obligation. The bill is an obligation of a bank of recognized standing. Second, funds placed in the certificate or bill market may be withdrawn at any time by the sale of the certificate or bill to a dealer, or, under certain conditions, to a Federal Reserve Bank. Both the certificate and bill markets are "two-way" markets in the sense that certificates and bills can be sold to the market as well as bought. This is in contrast with commercial paper, which must be held until maturity, unless it is rediscounted at a Reserve Bank. The call

money market is in effect a "two-way" market because funds placed in it can usually be withdrawn readily, but call loans cannot be rediscounted with or sold to the Reserve Banks.

A comparison may also be made between an investment in bills and a bank balance yielding 2 to

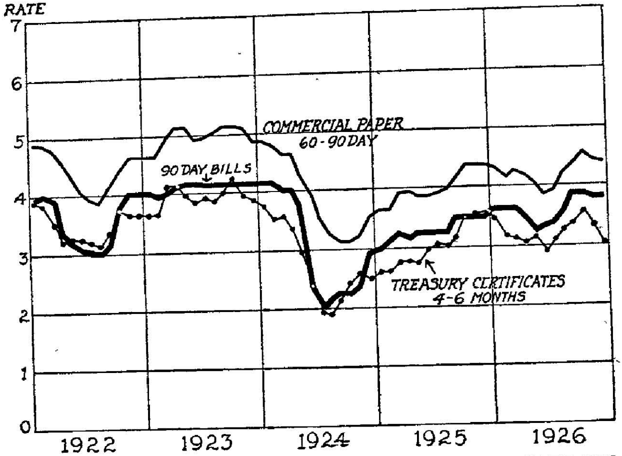


DIAGRAM 25—OPEN-MARKET RATES FOR BILLS AVERAGE ABOUT ONE PER CENT UNDER COMMERCIAL-PAPER RATES AND ARE CLOSE TO THE RATES ON SHORT-TERM GOVERNMENT SECURITIES.

2½ per cent. The bank balance has only the one bank back of it; the bill has the drawer of the bill, the accepting bank, frequently a second bank name, and still another endorser. It can be realized upon as promptly as the bank balance, and yields a much better rate of return.

Certificates and bills carry low rates because of their practically complete security and liquidity.

They have proved acceptable investments for those who have funds to employ for limited or uncertain periods and wish the maximum safety and availability.

Some time ago an inquiry was made by the New York Reserve Bank to ascertain just who the buyers of acceptances were other than such well-known buyers as city and country banks, savings banks, and insurance companies. Among the buyers mentioned by discount houses were the following:

Salt, iron, and petroleum companies in California.

A creamery and a telephone company in Colorado.

A hospital and various manufacturing plants in Connecticut.

Cotton mills in Georgia.

Many concerns in Illinois, ranging from publishing houses to manufacturers of screen doors.

A lumber mill in Indiana.

Elevators and milling companies in Kansas.

Manufacturing concerns and municipal finance boards in Maine.

An athletic club in Maryland.

A linseed company in Minnesota.

Coke and chemical concerns in Missouri.

Butchers, laundrymen, and a boys' club in New York.

A varied range of buyers from steel companies to sanitariums in North Carolina.

A coal miners' mutual association in Pennsylvania.

A Utah candy company.

Texas cotton companies.

A feed store in West Virginia.

A dairy farm in Wisconsin.

Also, scattered throughout the country, trustees of Protestant churches, bishops of Roman Catholic dioceses, the Salvation Army, colleges large and small, lodges of Elks, and other fraternal and welfare organizations.

Also, very large purchases of bills by foreign governments and by foreign banks having branches in this country, many foreign banks in cities as widely separated as Constantinople and Tokio, as well as many individuals in England, Switzerland, Holland, and other foreign countries.

Place of the Reserve Banks.—The list of buyers of bills is not complete without including the Federal Reserve Banks, for these banks usually hold considerable portfolios of bills and at certain times in the past have held as much as half of the bills outstanding in this country. The method by which these large holdings are acquired and the results of their purchase constitute a little understood but most interesting phase of present-day money market operations.

From one-third, to one-half of the bills held by the Reserve Banks (including bills under repurchase agreement) are purchased from houses which deal in bills, and the remaining bills are purchased from banks. If we exclude bills purchased under "sales contract," not far from three-quarters of all bills held are purchased from banks. Suppose we discuss first purchases from dealers because those purchases make possible the continued existence of a bill market.

The bill market could not exist without the Federal Reserve Banks, just as the bill market in London could not exist without the Bank of England. The bill market is dependent upon the existence of dealers who stand always ready to buy and sell bills and who carry an assortment of bills on their shelves, just as a grocery store carries groceries.

But bills are expensive commodities to keep on one's shelves. Ordinary capital funds cannot be invested largely in securities which yield 3 or 4 per cent; the bill dealer to carry his stock in trade requires a constant supply of borrowed money at low rates.

The practice is for the dealer to borrow from day to day in the money market the money with which he carries his stock. Ordinarily, the bill dealer can obtain call money at a rate about ¼ to ½ per cent under the quoted market rate for call money because of the type of security he offers. But there are often times in the money market when money is not available at low enough rates; at these times the bill dealer needs some place of refuge where he may obtain funds to tide him over the temporary period of stringency. The Federal Reserve Banks furnish that place, for they always stand ready to buy bankers' acceptances at their current buying rates. The practice of the Reserve Banks in this regard is similar in principle, though differing in detail, to the practice of the Bank of England, which always stands ready to buy bills from the London bill dealers at its current discount rates.

In addition to the unconditional purchase of bills from dealers, the Reserve Banks at times buy bills from them under repurchase agreement or "sales contract" by which the dealer agrees to repurchase the bills within fifteen days. This arrangement is the same as that made from time to time with dealers in government securities mentioned in Chapter VI.

The majority of bills purchased outright by Reserve Banks are purchased from banks, and here again the initiative is ordinarily taken by the sellers. The Reserve Banks always stand ready to buy bills at their current buying rates, but do not ordinarily go into the market offering to purchase bills.

The sale of bills to the Reserve Banks is a convenient way for banks to adjust their reserve positions. If a bank has been losing funds through currency withdrawals, out-of-town transfers, or any other withdrawal of deposits, it may quickly restore its reserve position by selling bills to its Reserve Bank. It thus secures reserve funds without appearing in its statement as a direct borrower from the Reserve Bank. Many banks keep portfolios of bills primarily because they offer so convenient a means for adjusting their reserve positions. It is through transactions of these sorts that the bill portfolios of the Reserve Banks are principally built up.

The Reserve Banks, as a rule, only buy bills after they have been held for some weeks by banks or other investors. The maturity of the bill holdings is reported each week in the press statement. The report for February 16, 1927, shows, for example, the following figures for the amounts maturing within specified numbers of days.

Bills maturing within 15 days........	$175,000,000
Bills maturing in 16 to 30 days......	69,000,000
Bills maturing in 31 to 60 days......	49,000,000
Bills maturing in 61 to 90 days......	19,000,000
Bills maturing in 91 days to 6 months	3,000,000
Total holdings.................	$315,000,000

The portfolio of bills held by the Reserve Banks is thus made up largely of short bills. Through the year about 10 million dollars of bills mature each day, and the whole portfolio turns over rapidly.

Results to Money Market.—When the establishment of a discount market in this country was discussed prior to the passage of the Federal Reserve Act, the conveniences which such a market might offer to trade and to the investor were emphasized. But even greater emphasis was laid on the reforms in the money market which a discount market might be expected to bring about. The hope was expressed by some that the development of a discount market might reduce the flow of liquid funds into the stock exchange money market and diminish the extent of speculative activity. No such spectacular development has taken place. The bill market has grown up beside the call market without revolutionizing the character of the older market. Rates for stock exchange money are somewhat steadier than they were, and the supply of funds is less volatile, but this market continues as in the past to be the largest field for the employment of surplus funds. Perhaps the principal change in these market relationships has been a tendency for commercial credit to be a little cheaper and credit for the security markets to be a little dearer than before, as will be discussed more fully later.

It is easy to conceive that gradual changes in practice and larger experience with the bill market may in time lead to a much larger volume of bills and a larger flow of funds into that market as compared with the stock exchange money market, but

for the present at least the principal changes in the money market, which may be ascribed to the influence of the bill market, are in other directions. Two important consequences of the presence of the discount market may be mentioned briefly.

In the first place, the bill market provides a medium by means of which additional Federal Reserve credit is obtained in time of temporary money strain and returned when the strain is passed. If the money market incurs a heavy loss of funds and rates move up, the banks promptly sell bills to the Reserve Banks and the dealers obtain funds by selling bills under repurchase agreement, and Reserve Bank credit is thus drawn into the market and eases the strain. As soon as the situation is easy again the portfolios of the Reserve Banks decline as maturities each day exceed new offerings, and the dealers take back the bills sold under repurchase agreement.

The way in which the bill holdings of the Reserve Banks respond to changing trade and credit conditions is illustrated by Diagram 26, which shows the System's holdings of bills at the end of each month. Every fall when trade calls for the largest use of credit and currency, the amount of bills in the market increases and bill holdings of the Reserve Banks tend to increase. After the turn of the year they decrease. In periods of easy money, as in the summer of 1924, they are small, and in periods of firmer money they increase. Through the bill market Federal Reserve funds flow into the market or out of it without as much pressure on the market as is involved in direct borrowing by member banks.

A second consequence of the presence of the bill market is that it facilitates a freer flow of funds and closer relations between this country and foreign money centers. Foreign bankers are accustomed to buying bills. The introduction of the bill market here has made our market a more attractive place for foreign bankers to employ balances. In the past few years many foreign banks have estab-

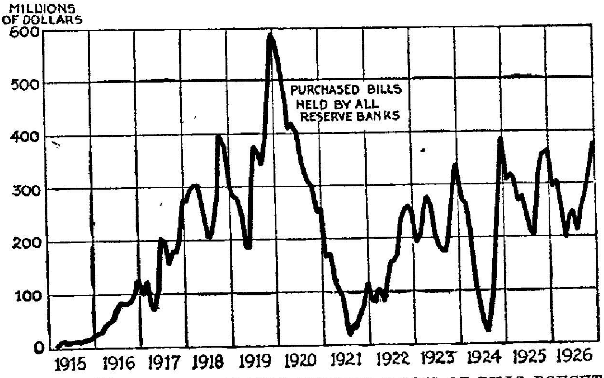


DIAGRAM 26—HOLDINGS BY THE RESERVE BANKS OF BILLS BOUGHT IN THE OPEN MARKET REFLECT CLOSELY TRADE ACTIVITY AND CREDIT CONDITIONS.

lished agencies here and large amounts of foreign money have been invested here in bills, and these funds have thus been available at low rates for the use of trade between the United States and other countries. Similarly, our own banks are becoming accustomed to buying bills and are more ready than formerly to employ their funds in the purchase of bills in foreign centers when money is easy at home

The presence of the bill market thus improves the mechanism for the free movement of funds and adjustment of the exchange between our own and other countries. By this means some of the barriers of international financial communication are broken down, and as a consequence conditions of strain or ease in any market tend to be more readily adjusted to world conditions by the movement of funds backward or forward.

The use of dollar bills in financing trade with all nations has built up a market for dollar exchange in all foreign centers and has vastly increased the contacts between our own and foreign banks. It has brought to our banks a whole range of new business. It has aided in making our money market international in scope.

As to the Future.—The development of the bill market in this country is far from complete. There are hundreds of domestic transactions which might be financed through the bill market more advantageously than by the methods now employed. The limitation is principally lack of knowledge of the bankers' acceptance and the persistence of old habits.

The market for bills in this country is now too narrow and too dependent upon the Federal Reserve Banks. No small proportion of the purchase of bills in the New York market is for foreign account in employing the large balances maintained here by foreign banks, corporations, and individuals. While domestic buyers of bills cover a wide range of concerns and individuals, the market would often be narrow if it were not for the buying for foreign account. There are comparatively few American

banks which carry large bill portfolios in marked contrast with the practice of British banks which carry large amounts as a secondary reserve. A part of this difference is due to the fact that bills or money lent to bill dealers constitute the principal means by which British banks replenish their reserves. The bills can always be allowed to mature or the money called. The British banks do not ordinarily borrow directly from the Bank of England. In this country, on the other hand, the member banks borrow directly from the Reserve Banks with some freedom. American banks, therefore, do not have the same incentive for buying bills as do the British banks.

Moreover, in this country, the bill market is in continuous competition for funds with the stock exchange money market, which offers almost as much liquidity, usually a somewhat higher rate, and perhaps somewhat greater ease of access, because it is easier to check over stock exchange collateral offered as security for a loan than a bundle of bankers' acceptances coming from the four corners of the earth.

Furthermore, there is no such supply of surplus money in this market available at a low rate for use of the bill dealers as there is in London. Here surplus money flows back pretty promptly to the Reserve Banks, since some banks are almost always in debt at the Reserve Banks and anxious to repay the debt.

These are serious difficulties which must be overcome before there is likely to be a wide further expansion of the bill market in the United States. But

the bill market is so important in our foreign and domestic trade, and so desirable a feature of our money market, that it seems certain that adjustments will take place to circumvent difficulties. The rapid progress that the bill market has already made, in a little over twelve years, justifies confidence in its future.

SUMMARY

1. In the past twelve years a new money market, the bill market, has grown up in this country and is now larger than the commercial-paper market.
2. The bankers' bill provides a means by which, through the use of bank credit, the seller of goods may receive immediate payment for goods shipped before the buyer has received or paid for the goods.
3. More than one-third of the bills drawn in this country are drawn to finance the storage or movement of American farm products.
4. The bankers' bill enables the farmer to tap central money-market funds to store or move his harvested crops. It makes credit available at lower rates. It provides exporters and importers convenient means of financing their transactions.
5. The bankers' bill is a form of investment of almost complete security and liquidity and despite low rates is therefore attractive for the employment of temporarily surplus funds.
6. By standing ready to buy bills at currently established rates the Reserve Banks support the bill market.
7. The bill market provides a medium by which

additional Federal Reserve funds are put into the market at times of strain and funds withdrawn at times of ease.

8. The presence of an American bill market encourages a freer flow of funds between this and other countries and aids in making our money market international in scope.
9. A number of difficulties, mainly in the organization of our money market, stand in the way of much further immediate expansion of the bill market in this country, but the rapid progress made thus far gives reason for hoping these difficulties may be overcome.

CHAPTER IX

An Analysis of Changes in the Money Market

As an illustration of the way in which the relationships between the money market and the New York Reserve Bank work out in daily practice it is proposed in this chapter to report some of the results of a method of analysis of day-to-day movements of the New York money market which is being employed at the Federal Reserve Bank of New York. The method is a joint product of the statistical department and certain of the operating officers of the Bank, and the results are used currently by the directors and officers.

Traditionally, the money market is thought of as an aggregation of a number of markets where liquid funds are employed in the purchase of short-term securities, or in advances against stock and bond collateral. For the purpose of this study of the market an entirely different approach has been taken and attention has been devoted to an analysis of the movement of the reserves of New York City banks. The reason for this procedure is not obvious on its face. The total amount of funds of every character employed in the New York market is difficult to estimate, but it is probably as much as 5 or 6 billion dollars, whereas the reserves of New York City banks total only about 700 million dollars. But the significant fact is that practically every

movement of consequence in the whole money market is reflected either in the reserves of individual city banks or in the aggregate of the reserves of all.

Bank Reserves the Key.—Practically no money market transactions are carried on with currency or coin; the banks and others keep small amounts of currency, and what is kept is largely for uses quite apart from the money market, such as the payment of wages and pocket money. Money-market business is transacted by checks which are drawn on bank deposits which are based on bank reserves. When William Smith buys securities from Peter Jones he gives him a check on Bank A. Peter Jones deposits the check in Bank B, and unless there are offsetting transactions Bank A loses reserves to Bank B in the clearing house settlements. If Smith has to borrow from his bank to buy the securities, the total of loans and deposits is increased and bank reserves must be increased, unless there is a corresponding liquidation of some other loan. The net of all such transactions is reflected in the required and actual amounts of bank reserves.

The New York Federal Reserve Bank is in an advantageous position to observe the movements of the money market as reflected in bank reserves, for practically all the large New York City banks are members of the Federal Reserve System and carry their reserves with the Reserve Bank. Thus it holds nearly all the ultimate bank reserves which are back of the credit used by the New York money market. The Bank is thus, in a sense, bookkeeper for the New York money market.

Diagram 27 illustrates for a typical period of two

months the movement of reserves of New York banks compared with requirements. The line which consists of a series of plateaus represents the reserve requirements of twenty-three of the largest New York City banks, which deal most largely in money-market funds. Under the Federal Reserve requirements as to reserves, the banks compute their required reserves each week for the period from Saturday to Friday. For this period the New York City banks are required to maintain average reserves equal to 13 per cent of their average daily net demand deposits, plus 3 per cent of their average daily time deposits. The line for required reserves is, therefore, a straight line for the week, running from Saturday to Friday.

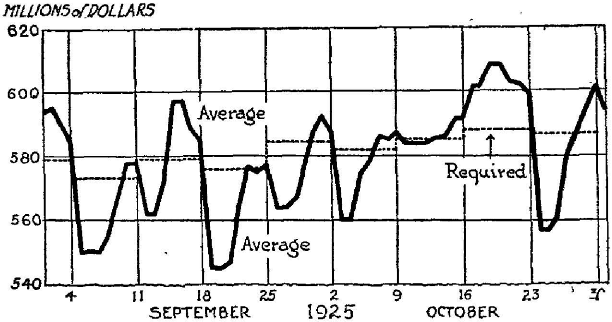


DIAGRAM 27—AVERAGE RESERVES OF 23 NEW YORK CITY BANKS COMPARED WITH RESERVE REQUIREMENTS.

The fluctuating line on the diagram shows the average daily reserves from the beginning of the reserve week. It is an accumulative average line. and this line must by the end of the week, in com-

pliance with law, be as high as the figure for required reserves. It will be noted on the diagram that this is what actually occurs at the end of each week: the average line is a little above the requirements line. Banks plan to use their funds to the maximum and hence there is seldom any large excess of reserves above requirements at the end of the week.

Diagram 27 brings out an important fact about movements of bank reserves: that reserve requirements change slowly and move within a comparatively narrow range, but that there is a much larger fluctuation in actual or average reserves. To put this another way, we may say that in the New York market, changes in the supply of funds are much larger and more rapid than changes in the demand.

Reserves and Money Rates.—The intimate relation between bank reserves and money-market conditions may be illustrated by a comparison of the day-to-day movement of reserves and the call-loan rate, which is the most sensitive index of money-market conditions. Such a comparison is made in Diagram 28. The figures for reserves are here shown in terms of accumulative excesses above or deficiencies below requirements. For example, if actual reserves are 10 millions below requirements for three successive days, it is shown as a total deficit of 30 millions. To put it another way, the diagram shows how much must be added to reserves or subtracted from reserves on any one day to bring average reserves exactly to the required amount.

It is clear from the diagram that call rates and bank reserves show an inverse relationship.

When average reserves are below requirements call-money rates tend to be high, and when average reserves are above requirements call-money rates tend to be low.

There is nothing mysterious or remarkable about this close relationship between rates and reserves, if one thinks of what actually happens in the banks

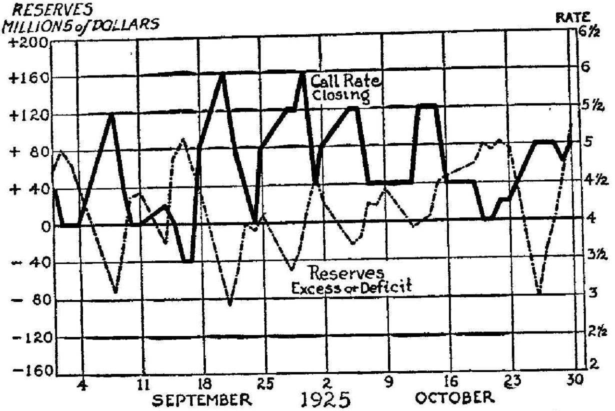


DIAGRAM 28—DAILY EXCESS OR DEFICIT IN RESERVES OF 23 NEW YORK CITY BANKS AND THE CLOSING CALL-LOAN RATE.

concerned. In each of the large New York City banks there is some person who is responsible for maintaining the bank's reserve position. To his desk flows a stream of current information as to any important changes in the bank's reserves, its deposits, or its loans. It is he who handles the bank's most flexible funds, which are employed mostly in call loans, holdings of bankers' acceptances, and Treasury notes and certificates. If this officer finds

on a certain morning that his average reserves for the week to date are below requirements, he looks about for a means of building up these reserves. The call-loan market is still the principal market through which reserve adjustments take place, and so it is a natural thing for this officer, after consultation with other officers of the bank, to call enough loans in the stock exchange money market to bring in the funds required. If other banks are in a similar position, it is clear that the result must be to raise the rate for stock exchange money. Conversely, when bank reserves are above requirements funds are placed on the market and rates decline.

There are other methods of adjusting reserves besides the shifting of funds to and from the call market. Maturing loans may or may not be replaced, acceptances, United States securities, or other securities, may be bought or sold, or paper may be rediscounted at the Reserve Bank. The practices of different banks in adjusting their reserves are different. Some banks customarily adjust reserves by rediscounting paper at the Reserve Bank; others sell bills in the market or to the Reserve Bank, but there are still enough who operate largely through the call-loan market so that any general shortage of reserves affecting many banks (and shortages travel the round of the banks rapidly) will almost surely be reflected in higher call rates. Moreover, even when a bank adjusts its reserves by borrowing from the Reserve Bank, its efforts to secure funds to pay off this loan usually place pressure directly or indirectly on the call-loan money market.

Thus the reserve position of the New York City

banks is a prime factor in determining the day-to-day movement of money rates. It is the balance sheet of requirements and reserves on the desk of the operating official of the New York City bank which is the most significant set of facts with regard to money-market changes. If one could set up a balance sheet for the banks in New York City as a whole, which would be simply a summary of the balance sheets on the desks of the executives in the principal banks, one would know from hour to hour and from day to day the principal forces which were moving in the money market.

A Reserve Balance Sheet.—In the Federal Reserve Bank of New York an attempt has been made to set up just such a balance sheet which might indicate what was going on in the money market. The basis of the balance sheet is the figures of Diagram 27 for the actual and required reserves of banks. Figures for actual reserves are taken from the books of the Reserve Bank at the opening of business every morning for twenty-three of the largest banks. The banks report their reserve requirements only once a week, at the end of the week, but more frequent estimates of the changes in these requirements are made from daily reports of deposits of principal banks. Reserve requirements change slowly and therefore an estimate of changes during the week serves the purpose.

There are thus available every morning figures showing the estimated required reserves of these twenty-three banks and, compared with them, the average reserves actually maintained for this period. These figures alone reveal with a considerable de-

gree of accuracy whether money is likely to be easy or tight for the next day or two, but more than that was wanted—some account of the changes in the situation from hour to hour and the reasons for the changes.

Therefore, an analysis was made of the factors affecting reserves, and the available data for each of these factors were assembled at hourly intervals. It was found that practically every transaction which increases or diminishes the reserves of member banks is traceable in the records of the Reserve Bank. These transactions are summarized in an hourly report substantially in the form of Table 10.

In general there are two major types of changes which result in increasing or diminishing bank reserves. The first consists of ordinary commercial or agency operations, including the transfer of funds to and from other centers (either by direct wire transfers or in settlement for check-collection operations), currency withdrawals or deposits, gold imports or exports, and operations in which the Federal Reserve Banks act as agents for the government, or for foreign banks of issue in putting funds into the market or withdrawing them from the market. Each one of these operations may have the effect of increasing or diminishing the reserve balance of member banks at the Reserve Bank. The upper part of Table 10 shows the operations in these categories which actually took place on October 30, 1925, the figures being shown in net round amounts.

The second type of operation affecting the market is that involving the extension of Reserve Bank credit. When the bank officer in charge of a member

TABLE 10.—LOSS AND GAIN TO MARKET, OCTOBER 30, 1925
(In millions of dollars)

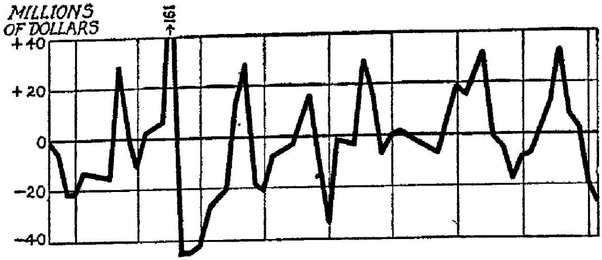
	Net Loss	Net Gain
Commercial and Agency* Transactions:		
Wire transfers	28	..
Check settlements	..	10
Currency and coin	11	..
Gold imports	..	9
Foreign accounts	..	1
Total	39	20
Net	19	..
Reserve Bank Credit:		
Bills owned	..	7
Bills (sales contract)	..	2
U. S. securities owned	..	..
U. S. securities (sales contract)	3	..
Loans	..	11
Total	3	20
Net	..	17
Net gain or loss for day	2	..

* In Agency transactions are included those transactions in which the Reserve Bank acts as fiscal agent for the Treasury or as agent for a foreign correspondent bank.

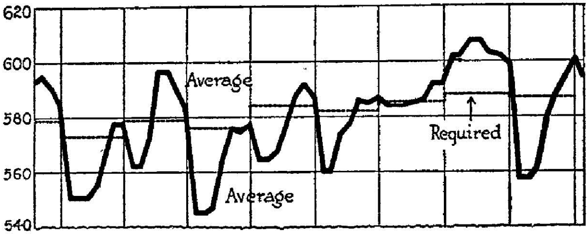
bank's position finds that his reserves are deficient, due to such changes as those just listed, he may build up his reserves by borrowing at the Reserve Bank or selling acceptances to it. Similarly, the government security and bill dealers may in case of need temporarily secure funds to meet their obligations or to enable them to carry an increased portfolio by making temporary sales of securities or acceptances to the Reserve Bank, accompanied by an agreement to repurchase them within fifteen days. The funds thus secured are promptly deposited in a member bank, which in turn redeposits them in the Reserve Bank, increasing its reserves. In these ways the banks may obtain the funds they require to build up deficient reserves.

An experiment of about two years with an hourly report like Table 10 indicates that the net gain or loss which such a report shows at the end of the day corresponds closely with the change finally shown when the reserve accounts of the member banks are totaled the following morning. It will be noted from the table that on October 30 it happened that the amount of Federal Reserve money which was called into use and became available to increase bank reserves, was very close to the amount which was lost to the market through other transactions. It is, of course, largely a matter of chance that this should occur in any single day, but it is exactly what occurs from week to week. Federal Reserve credit is called into use precisely as it is required for the adjustment of the reserve position of member banks.

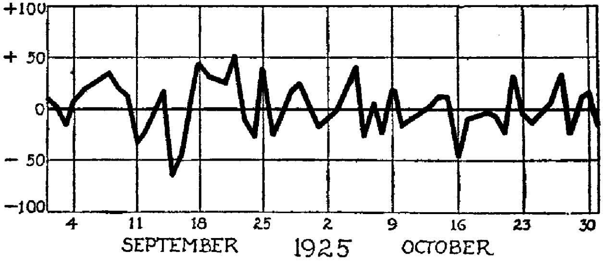
Interplay of Market and Reserve Banks.—Diagram 29 illustrates over a term of two months the



GAINS AND LOSSES TO RESERVES THROUGH COMMERCIAL AND AGENCY TRANSACTIONS



AVERAGE RESERVES OF 23 NEW YORK CITY BANKS COMPARED WITH RESERVE REQUIREMENTS



GAINS AND LOSSES TO RESERVES THROUGH USE OF FEDERAL RESERVE CREDIT

DIAGRAM 29—DAILY RESERVE POSITION OF 23 NEW YORK CITY BANKS AND GAINS AND LOSSES TO RESERVES THROUGH COMMERCIAL AND AGENCY TRANSACTIONS AND THE USE OF FEDERAL RESERVE CREDIT.

reaction on bank reserves of gains and losses to the market from ordinary commercial transactions, and gains and losses through changes in the amount of reserve credit outstanding. The top line of the diagram is a day-to-day record of gains and losses through commercial and agency operations, such as have been listed in the top half of Table 10. The two lines in the middle of the diagram are the same as were shown in Diagram 27 and the third line represents gains and losses to the market by increases or decreases in the amount of reserve credit in use in New York.

If this diagram is followed week by week one sees that changes in bank reserves reflect the aggregate result of the gains and losses to the market shown in the lines at the top and bottom of the diagram. For example, average reserves started the month of September, 1925, $15,000,000 above reserve requirements. The market lost funds through commercial transactions (actually through the transfer of funds out of town) and the banks finished the statement week on September 4, with average reserves only about $5,000,000 above requirements. At the beginning of the next week (September 4 to 11) a loss of funds for several days in commercial transactions reduced reserves to a low point, and about the middle of the week the banks borrowed heavily from the Reserve Bank to bring their reserves up to requirements.

The following week was the quarterly tax period. The banks began the week with reserves under the requirement. Then occurred the phenomenon familiar to tax-day periods. Government disburse-

ments to redeem maturing issues and pay interest were larger for a few days than receipts from income taxes, checks for which are collected slowly. Thus for a few days the government put funds into the market (shown in the diagram as a heavy gain in commercial and agency transactions); bank reserves were sharply increased and the banks paid off their loans at the Reserve Bank. For a few days the Treasury borrowed from the Reserve Bank on a special certificate of indebtedness to cover its excess of payments over receipts. As income-tax checks were collected, bank reserves were drawn down, the banks were forced to borrow once more at the Reserve Bank, and the Treasury paid off its special certificate.

Meantime, there was an interesting movement in the relation with other districts. The amount of Treasury obligations redeemed in New York is always large because New York is an investment center. To help meet the overdraft at the Reserve Bank caused by the heavy redemptions, the Treasury transferred funds from other districts. But the money pulled out of other districts created a vacuum there and banks in those districts drew upon their balances in New York to maintain their reserves. This withdrawal of funds, shown by the sharp drop in the top line, was another influence supplementary to the collection of income-tax checks in causing a downward movement of reserves.

So the reader may find in the record of other weeks shown in Diagram 29 the interaction of commercial and agency transactions, bank reserves, and Federal Reserve credit.

As a result of this experiment the conclusion may be drawn that the call rate in New York reflects primarily the balance sheet of bank reserves and it is possible to analyze the changes in bank reserves to show the principal causes which had led to the changes.[1]

More broadly, a study of the money market by the methods suggested in this chapter suggests immediately certain generalizations concerning the operation of the money market.

1. Small movements of funds frequently have large results in creating easier or firmer money conditions. A gain or loss to the market of 20 or 30 million dollars of reserve money may frequently make a difference of ½ per cent in the call-money rate. Although a large amount of funds is employed in the money market, the market is delicately balanced and easily affected by small movements in either direction. In fact, the market illustrates the law of marginal differences.

2. The Federal Reserve Banks are in practically constant contact with the money market. One frequently reads in current discussions that the Reserve Banks are out of contact with the market, and that, therefore, their rates have no influence. This is almost never true. As the constant ebb and flow of funds between the New York money market and other centers takes place, the New York City banks call on their Reserve Bank for constantly changing

[1] It may be noted that while many of the data reported here are available currently and daily only in the records of the Federal Reserve Banks, the basic data for required and actual reserves are publicly available in the Saturday statement of New York clearing house banks.

amounts of accommodation, so that there are daily fluctuations in their use of Reserve Bank facilities. It is only rarely—as, for example, for a few weeks during the period of easy money in the summer of 1924—that the New York market is in any sense independent of the Reserve Bank and out of contact with it. As a rule the contact is continuous.

3. The use of Reserve Bank credit by the money market is in the main a semi-automatic operation. The amount of such credit called into use at any time is the result of the composite action of the officers of many member banks and occasionally of dealers in bills and securities. In the main the use of reserve credit is on the initiative of these people and not on the initiative of the Bank. This does not mean that Reserve Bank policy in fixing its rate and dealing at times in government securities is not important. It means that the Bank helps to set the stage by fixing its discount and buying rates, and beyond that point the operation is ordinarily semi-automatic as far as the Bank is concerned. The use of reserve credit by the market is a direct response to changing conditions in the market. This semi-automatic adjustment of Reserve Bank credit to market needs is a major force for financial stability and is one of the most effective contributions which the Reserve System makes to American finance.

SUMMARY

1. Almost all transactions in the money market are reflected at one point or another in changes in bank reserves.

2. Daily changes in the call-loan rate reflect primarily the balance sheet of required and actual reserves; and a small change in the reserve position often leads to a change in rate.
3. Reserve requirements change slowly; but the supply of reserve funds changes rapidly.
4. Changes in the supply of reserves reflect various commercial and Treasury operations, such as transfers to and from other centers, currency deposits and withdrawals, gold movements, etc.; and reflect also changes in the amount of Federal Reserve credit in use.
5. Federal Reserve funds are called into use in direct response to changes in reserves due to all other causes—Federal Reserve credit is used to adjust reserves to requirements.
6. The Federal Reserve Bank of New York is thus in almost continuous daily contact with the money market.
7. The daily semi-automatic use of Federal Reserve funds for reserve adjustments, on the initiative of the member banks and market, is a major service towards financial stability.

TABLE 11.—DATA SUPPORTING DIAGRAMS 27 TO 29

1925	Reserves of 23 New York City Banks—Close of Business (In millions of dollars)				Closing Call-loan Rate	Net Gain or Loss to Reserves of City Banks Through Day's Operations (In millions of dollars)		
	Required	Actual	Average Week to Date	Accumulated Excess or Deficit		Commercial and Agency Transactions	Reserve Bank Operations	Net Total
Sept. 1	...	606	593	+56	4½	− 1.2	+ 9.6	+ 8.4
2	...	602	595	+80	4	− 5.0	+ 2.4	− 2.6
3	...	567	590	+66	4	− 22.3	− 18.1	− 40.4
†**4**	**579**	**550**	**584**	**+35**	**4**	**− 21.6**	**+ 8.4**	**− 13.2**
5	...	550	550	....	...	− 13.5	+ 17.0	+ 3.5
6	...	550	550	....	...	......	......	......
7	...	550	550	....	...	......	......	......
8	...	571	555	−72	5½	− 15.1	+ 34.2	+ 19.1
9	...	615	567	−30	4½	+ 27.9	+ 19.5	+ 47.4
10	...	629	578	+30	4	− .6	+ 13.4	+ 12.8
†**11**	**573**	**583**	**578**	**+35**	**4**	**− 11.5**	**− 34.8**	**− 46.3**
12	...	562	562	....	...	+ 2.5	− 22.1	− 19.6
13	...	562	562	....	...	......	......	......
14	...	591	572	−21	4¼	+ 7.0	+ 16.9	+ 23.9
15	...	673	597	+72	4	+ 160.7	− 66.2	+ 94.5
16	...	596	597	+90	3½	− 46.2	− 45.5	− 91.7
17	...	548	589	+60	3½	− 45.8	+ 12.0	− 33.8
†**18**	**579**	**554**	**584**	**+35**	**5**	**− 42.7**	**+ 45.8**	**+ 3.1**
19	...	545	545	....	...	− 27.6	+ 30.5	+ 2.9
20	...	545	545	....	...	......	......	......
21	...	550	547	−87	6	− 20.6	+ 25.9	+ 5.3
22	...	613	564	−48	5	+ 13.8	+ 51.5	+ 65.3
23	...	625	576	....	4½	+ 28.2	− 12.9	+ 15.3
24	...	573	575	− 6	4	− 19.2	− 28.2	− 47.4
†**25**	**576**	**590**	**577**	**+ 7**	**5**	**− 21.2**	**+ 39.8**	**+ 18.6**
26	...	564	564	....	...	− 7.5	− 25.5	− 33.0
27	...	564	564	....	...	......	......	......
28	...	573	567	−51	5½	− 2.7	+ 16.5	+ 13.8
29	...	602	576	−32	5½	+ 5.8	+ 25.2	+ 31.0
30	...	631	587	+15	6	+ 17.0	+ 1.6	+ 18.6

† Bold-face figures indicate end of reserve week.

TABLE 11.—(CONTINUED)

1925	Reserves of 23 New York City Banks—Close of Business (In millions of dollars)				Closing Call-loan Rate	Net Gain or Loss to Reserves of City Banks Through Day's Operations (In millions of dollars)		
	Required	Actual	Average Week to Date	Accumulated Excess or Deficit		Commercial and Agency Transactions	Reserve Bank Operations	Net Total
Oct. 1	...	620	592	+48	4½	− 9.4	−16.6	−26.0
†**2**	**584**	**555**	**587**	**+21**	**5**	**− 33.8**	**− 9.4**	**−43.2**
3	...	560	560	....	...	− .9	− 1.8	− 2.7
4	...	560	560	....	...	......	......	......
5	...	602	574	−24	5½	− 2.9	+42.1	+39.2
6	...	591	578	−16	5½	+ 30.3	−27.6	+ 2.7
7	...	616	586	+20	4½	+ 16.1	+ 6.5	+22.6
8	...	583	585	+18	4½	− 7.0	−22.7	−29.7
†**9**	**582**	**598**	**587**	**+35**	**4½**	**− .1**	**+20.5**	**+20.4**
10	...	584	584	....	...	+ 1.5	−17.3	−15.8
11	...	584	584	....	...	......	......	......
12	...	584	584	....	...	......	......	......
13	...	586	585	....	5½	− 4.7	+ 2.0	− 2.7
14	...	589	586	+ 5	5½	− 7.5	+12.5	+ 5.0
15	...	622	592	+42	5½	+ 16.5	+11.0	+27.5
†**16**	**585**	**596**	**592**	**+49**	**4½**	**+ 19.6**	**−48.2**	**−28.6**
17	...	602	602	....	...	+ 15.4	− 9.0	+ 6.4
18	...	602	602	....	...	......	......	......
19	...	620	608	+60	4½	+ 32.5	− 2.7	+29.8
20	...	608	608	+80	4	+ .3	− 5.7	− 5.4
21	...	586	603	+75	4	− 5.3	−22.7	−28.0
22	...	596	602	+84	4¼	− 17.9	+32.8	+14.9
†**23**	**588**	**578**	**599**	**+77**	**4¼**	**− 8.3**	**− 3.6**	**−11.9**
24	...	557	557	....	...	− 6.5	−13.4	−19.9
25	...	557	557	....	...	......	......	......
26	...	570	561	−78	5	+ 13.1	+ 5.1	+18.2
27	...	635	580	−28	5	+ 32.8	+32.7	+65.5
28	...	624	588	+ 5	5	+ 8.4	−24.4	−16.0
29	...	634	596	+54	4¾	+ 1.7	+12.1	+13.8
†**30**	**587**	**631**	**601**	**+98**	**5**	**− 19.0**	**+17.3**	**− 1.7**
31	...	594	594	....	...	− 26.9	−15.7	−42.6

CHAPTER X

The Mechanism of Credit Policy

THE preceding three chapters have described in some detail the mechanism by which reserve funds flow from the Reserve Banks into the money market when additional funds are needed, and flow back into the Reserve Banks when the need has passed, but little has been said thus far about the general policies governing the flow of funds. In fact, emphasis has rather been laid upon the semi-automatic phases of the movement.

But the Reserve Banks have a most important responsibility in connection with this movement of reserve funds into and out of use. That responsibility concerns the restrictions which are thrown around the use of reserve funds. The problem is to set up the mechanism in such fashion that reserve funds will be used as fully as necessary to provide business with adequate funds, without at the same time encouraging too free use of these funds. To put it another way, the problem is to aid in the adjustment of the volume of credit to the volume of business. Maladjustments in this relationship tend toward inflation, rising prices, and speculation on the one hand, or deflation, falling prices, and depression on the other.

In their determination of the price of reserve funds and the general conditions under which mem-

ber banks and others may secure such funds, the Federal Reserve Banks and Board thus carry a heavy responsibility. For their influence in making reserve funds easy or difficult to obtain may have large economic and social consequences. Decisions on these matters by the boards of directors of the Reserve Banks and by the Federal Reserve Board are the most difficult and important that they make. The problem in this field with which the public is most familiar is the determination of the discount rate—which is simply the price which member banks must pay for the funds they borrow from the Reserve Banks. But there are other similar problems just as perplexing: the problem of open-market policy, the problem of dealing with individual member banks which may be abusing the borrowing privilege, and the problem of publicity. All these are phases of the general problem of credit policy.

Before considering in detail any of these policy problems it will be well to say something as to the general mechanism of the Reserve System for deciding policies, and particularly something as to who it is who makes the decisions.

It may well be noted first that it is a new thing in this country to have anybody considering and able to exercise an influence upon the country's general credit policy. In the old days, with the country's bank reserves scattered among many thousands of separate banks, each working for its own interest and each organized for profits, no continuous common policy was feasible. No one was responsible for general credit conditions. In times of emergency when some joint action was impera-

tive, powerful private individuals and the clearing houses took command of the situation and enforced some plan for a short period. In other countries banks of issue have continuous leadership, but here we had no such agency before the Reserve System was established, save for the two periods when the first and second banks of the United States were in operation. The Reserve Act provided an organization, not operated for profit, continuously interested in the country's monetary and banking policies.

Local Autonomy.—Turning to the mechanism for determining Federal Reserve policy, one of its fundamental principles is its provision for safeguarding local interest, while at the same time insuring a measure of national unity in policy.

Beginning with the local member bank the principle of local self-government is respected. The Federal Reserve Banks do not tell their member banks what loans they may or may not make to their customers, what investments they may buy, or what deposits they may accept. All these are matters for decision by the member bank, under the general restrictions of national or state banking law.

Similarly, the twelve Federal Reserve Banks are autonomous units in dealing with the member banks. Each Federal Reserve Bank is operated by its own directors and the officers appointed by its board of directors. Each Reserve Bank decides how much or how little it will lend to member banks. Each Reserve Bank is responsible for initiating changes in its discount rate and for deciding its policy in open-market transactions. It is clear in

the Federal Reserve Act that Congress had no intention of creating a central bank in this country, but a regional banking organization, with only a certain measure of centralization in those matters in which uniformity of practice and policy is essential.

There are certain of the functions of the Reserve Banks which are country-wide in scope, including the collection and wire-transfer systems, in which uniformity of practice is necessary, and for these functions the Federal Reserve Board prepares uniform regulations. In matters of policy, moreover, a certain coordination is necessary and the law provides that discount rates established by the individual Reserve Banks are subject to "review and determination of the Federal Reserve Board." Coordination in open-market purchases of acceptances and government securities is effected through a committee of governors of five of the Reserve Banks, which in consultation with the Federal Reserve Board makes recommendations to the banks as to open-market policy.

The provision in the mechanism of the Reserve System for safeguarding both national and local interests was referred to as follows by President Wilson in a letter to Senator Underwood:

> No group of bankers anywhere can get control. . . . No one part of the country can concentrate the advantages and conveniences of the system upon itself for its own selfish advantages. . . . I think we are justified in speaking of this as a democracy of credit. Credit is at the disposal of every man who can show energy and assets. Each region of the country is set to study its own needs and opportunities and the whole country

stands by to assist. It is self-government as well as democracy.

Who Decides Policy.—Another feature of the mechanism of the Federal Reserve System, which is a guaranty of the representative character of decisions as to policy, is the method of selection of the people who decide policy.

The Federal Reserve Board consists of eight members including the Secretary of the Treasury and the Comptroller of the Currency ex officio. The six other members are appointed by the President for ten-year terms, by and with the advice and consent of the Senate. Not more than one of the six members shall come from any one Federal Reserve District, and they must be appointed with "due regard to a fair representation of the financial, agricultural, industrial, and commercial interests, and geographical divisions of the country." Of the six appointed members of the board in 1926, two were formerly lawyers and the others were farmer, merchant, newspaper publisher, and economist.

The selection of directors of the individual Reserve Banks was discussed in the *Monthly Review* of the Federal Reserve Bank of New York for January 1, 1926, as follows:

Of the nine directors (of each Reserve Bank), six are elected by the member banks and three are appointed by the Federal Reserve Board. Of the six elected by member banks three *may* be bankers, and the other three *must* be actively engaged in commerce, agriculture, or industry in the district, and while serving as Reserve Bank directors may not serve as directors or officers of any other bank. Of the three directors appointed by the

Federal Reserve Board, one acts as chairman of the Board, a man of banking experience, and devotes his entire time to the Federal Reserve Bank, carrying in addition the title and duties of Federal Reserve Agent. The other two appointed by the Federal Reserve Board must have no other banking connection while serving as directors. Hence they are usually business men.

Business Men in the Majority.—Thus, of the nine directors of each Reserve Bank, five are ordinarily business men, three are active bankers (frequently with business interests in addition), and one is chairman and Federal Reserve Agent. Directors hold office for three years and may be reappointed or reelected.

Of the present 108 directors of the 12 Reserve Banks, 12 are the chairmen of the board and 36 are active bankers. The remaining 60, constituting the majority, are as follows:

19 manufacturers
14 merchants
4 farmers
4 lumbermen
2 insurance men
3 investment bankers
3 retired business men
2 publishers
2 lawyers
2 railroad men
1 cattleman
1 contractor
1 public utilities man
1 mining official
1 savings bank officer

In each of the 12 Federal Reserve districts it is men with this wide range of interests and familiar with conditions in the district who are responsible for the management of the Reserve Bank.

* * * * * * *

In addition to the directors of the 12 Reserve Banks each of the 23 branches has a board of seven[1] directors, residents of the branch territory, of whom four are appointed by the Federal Reserve Bank of the district and three by the Federal Reserve Board. The directors of branches have a range of occupations and interests similar to that indicated above for the directors of the banks. Their jurisdiction in credit matters is limited to

[1] Changed to seven or five by later amendment of regulations.

passing upon loans to member banks in the territory served by the branch.

The Federal Reserve Act provides for a Federal Advisory Council consisting of one member from each district, selected by the board of directors of the Reserve Bank in that district. This council meets at least four times a year at Washington and discusses with the Federal Reserve Board important problems of policy. The council members are bankers and business men of national reputation.

As a still further means for the coordination of Federal Reserve policy the Federal Reserve Board has made it a custom to call conferences each year of the chairmen and governors of the twelve Federal Reserve Banks. These conferences meet in Washington in the offices of the Federal Reserve Board and are the occasion for a thorough review of important phases of Federal Reserve policy.

So we see that under the terms of the Federal Reserve Act and current procedure, the management of the Federal Reserve System is so designed as to bring to bear upon any important question of policy both local and national points of view, together with the opinions of men of many different occupations and interests.

Not Operated for Profit.—By the terms of their establishment the Federal Reserve Banks have a different philosophy from that of commercial banks. The mechanism is devised so as to remove from their decisions as completely as possible the motive of profit. Any net earnings beyond 6 per cent dividends to member banks on the paid-in capital stock and the provision for a reasonable accumulation of

surplus are required by law to be turned over to the United States Government as a franchise tax. This removes the incentive to operate the banks for the purpose of making large profits and leaves them free to concentrate their policy upon public service.

More positively, the Federal Reserve Act lays down the principle that the discount rate shall be determined "with a view of accommodating commerce and business." These are general terms, but they at least indicate that public service and not profit is the end to be sought. A similar principle has been adopted and promulgated by the Federal Reserve Board as the guiding principle in purchases and sales of government securities.

Furthermore, there is no question with the Reserve Banks of getting or retaining customers; they cannot solicit business and that which they have cannot be taken away by competitors; there are no special arrangements for particular customers. In fact, the Reserve Act specifically forbids "discrimination in favor of or against any member bank." In each district the largest bank and the smallest bank borrow at the same rate.

The whole atmosphere of Reserve Bank policy-making is thus quite different from that of the commercial institution. It encourages impartial decisions, with the public welfare as the goal.

Economic Information.—From the earliest years of their operation the Federal Reserve Board and Banks recognized the need of having as an aid in determining policy the fullest possible information on business and credit conditions. The Federal Reserve Board organized a Division of Analysis and

Research in 1918, and all the Reserve Banks have organized statistical departments. At the present time the reporting and statistical service of the System is one of the most highly developed in the country.

The result is that when a board of directors of a Reserve Bank or when the Federal Reserve Board considers a question of policy, it has before it a wide range of data as to the condition of business and banking. The information includes a great deal of data collected by the Reserve System directly from original sources. These data include, for example, current reports upon the following:

Federal Reserve operations.
Condition of member banks.
Money market rates and conditions.
Gold movements.
Movements of funds about the country.
Brokers' loans.
Commercial paper outstanding.
Interest rates charged by banks.
Savings-bank deposits.
Bank debits.
Condition of foreign banks of issue.
Money rates abroad.
Foreign exchange rates.
Foreign and domestic financing.
Sales and stocks of department stores.
Sales and stocks of wholesale dealers.
Sales of chain stores and mail-order houses.

The Reserve Board and Banks compute a variety of indexes, including indexes of prices, production, employment, wages, building, transportation, volume of trade, bank debits, velocity of deposits, wholesale trade, retail trade, failures, etc.

These data are presented to the Federal Reserve Board and the directors of the Reserve Banks as they become pertinent to any problem under discussion. The diagrams illustrating Chapters XI and XII, for example, are copies of several of the large charts which are regularly presented at the weekly meeting of the directors of the Federal Reserve Bank of New York, along with detailed data in the form of typed reports. This comprehensive body of facts has an important place in the mechanism of the Reserve System for policy determination.

In passing it may be noted that most of this information is made public regularly (in the form of aggregates) in the Federal Reserve Bulletin and the monthly reviews of credit and business conditions published by the Federal Reserve Agents of the twelve banks.

A Test of the Mechanism.—One of the best tests of the mechanism of the Federal Reserve System for policy determination is found in the type of men who are willing to accept appointment to the boards of directors of the Reserve Banks. In each district election or appointment to the board of the Reserve Bank has come to be regarded as an honor which is seldom refused. The boards are made up of men of character and reputation, and their presence on these boards is a safeguard against political or other outside influence.

SUMMARY

1. Previous chapters have dealt largely with the semi-automatic phases of the use of Federal Re-

serve funds by the member banks and the market; but the Reserve System has at its command means for exercising an important influence on the extent of use of reserve funds. This is the field of Federal Reserve policy.

2. In policy decisions the principle of local autonomy is observed; the Federal Reserve System is not closely centralized, but each Reserve Bank is largely autonomous. It is only in certain matters where uniformity of practice and policy is essential that central coordination is provided for.
3. The provisions governing the appointment of the Federal Reserve Board and the election of the directors of the Reserve Banks give assurance that the people who decide policy will represent all parts of the country and a wide range of business and banking interests.
4. The Federal Reserve mechanism is so designed as to remove the profit-making motive as completely as possible from its policy. Profits are limited and the "accommodation of commerce and business" is set as the aim of policy.
5. As an aid in policy determination the Reserve Board and Banks maintain qualified research staffs continuously engaged in the collection and analysis of economic information.

CHAPTER XI

Credit Policy—Tradition and the Discount Rate

AFTER the preliminary observations in the preceding chapter as to the general organization of the Federal Reserve System for policy decisions, it is well to examine more specifically some of the kinds of decisions which have to be made, some of the factors taken into consideration in reaching decisions, and some of the results of decisions, as far as they can be traced.

Broadly speaking, the aim of Federal Reserve credit policy is to help bring about such an adaptation of the volume of credit to the volume of business that every legitimate need for credit will be met, but that the volume of credit will not be expanded beyond the legitimate need.

As a fundamental principle, the Federal Reserve Banks do not deal directly with the consumers of credit, but with the member banks and the money market. The Reserve System, therefore, cannot prescribe the uses to which credit shall be put. That decision rests with the individual member bank.

The Reserve System deals with credit quantitatively and not qualitatively. Its influence is upon the total amount of credit in use and not upon the method of its employment.

A member bank almost never borrows from a Fed-

eral Reserve Bank in order to make a particular loan. It borrows rather when its balance sheet shows that reserves are deficient after the day's operations are completed. The borrowing comes as a net result of the making of loans, the payment for checks drawn, the receipt of deposits, and all the rest of the day's transactions. It is seldom possible to say just what transaction has led to borrowing at the Reserve Bank.

There is ordinarily no connection between the character of the paper which the borrowing bank offers to a Reserve Bank and the transaction which has made borrowing necessary. Almost all member banks have on hand at all times amounts of government securities and other eligible paper on which they could borrow much larger amounts than are necessary except in extreme emergency. The bank which finds it necessary to borrow uses the most readily available paper. Eligibility requirements influence the character of employment of bank funds only to the extent that banks are somewhat predisposed to make loans which give them eligible paper. Thus a Reserve Bank cannot tell from the nature of its loans what the money will be used for.

Still further difficulty in tracing the use of Federal Reserve funds arises from the fact that the funds lent are frequently, if not usually, put to employment by some other bank (or individual) than the bank borrowing the money. For example, suppose Mr. Jones draws a check for $2,000,000 on Bank A to pay a mortgage owing to Trust Company B. Bank A finds its reserve impaired and bor-

rows $2,000,000 from its Federal Reserve Bank. But it is not Bank A, but Trust Company B, which may not even be a member bank, that has the employment of the $2,000,000. Clearly the Reserve Bank has no means of prescribing how the money shall be spent, nor even knowing how it is spent. This is not an exceptional case, for the most frequent cause leading a bank to borrow is a loss of deposits leading to a deficiency in reserves.

It is thus impossible for a Reserve Bank to dictate how its credit shall be put to employment. It cannot, for example, restrict loans on the stock exchange and at the same time encourage loans to the farmer. Reserve Bank loans to a farming community bank may, and often do, find their way promptly to the stock exchange money-market. The specific use of credit is the business of the individual member and non-member bank, and the Reserve System is no substitute for sound banking practice. The judgment of the officers of our many thousands of banks is still the principal safeguard against the improper use of credit.

It is the business of the Reserve System to influence the amount of credit in use, and try to bring about a proper adaptation of the total volume of credit to the volume of business. Even in the determination of the volume of credit it should be kept continuously in mind that it is usually the member bank which exercises the initiative in putting additional Federal Reserve funds to work. The Reserve Banks stand ready to lend to member banks at their discount rate or to buy bills at the established buying rates. It is ordinarily the banker who decides

whether or not he shall call Reserve Bank funds into use. What the Reserve Banks do primarily is to fix the price at which their funds may be purchased and in certain other ways influence the conditions under which their funds are used.

Restraints on Use of Reserve Funds.—Five restraints which tend to prevent the excessive use of Reserve Bank funds may be distinguished. One of these is applied by the member banks. The other four are administered by the Reserve System and are the instruments by which Federal Reserve credit policy finds expression. These five restraints are:

1. Tradition against borrowing.
2. Discount rate.
3. Open-market operations.
4. Direct dealing with individual banks.
5. Publicity.

These five will now be discussed in order.

Tradition Against Borrowing.—It may seem strange to speak of tradition as having an important influence upon the operations of an institution only thirteen years old. The word is justified because there appears to have been transferred to the Reserve System an inheritance from the past.

Somewhat as in the old days the bank which borrowed largely and continuously from its correspondents was looked upon with suspicion, so today there exists generally a feeling against large and continuous borrowing from a Federal Reserve Bank. This is a feeling which the officers of the Reserve System have encouraged. Federal Reserve funds are the country's banking reserves and should be used in

busy seasons and emergencies, and not as a substitute for bank capital.

The facts as to the unwillingness of banks to remain heavily in debt at the Reserve Banks for long periods are illustrated by Diagram 30, in which one line shows the amount of borrowing at Reserve Banks, or total bills discounted, by all member banks, and the other shows the interest rate on prime 4 to 6 months' commercial paper in the open

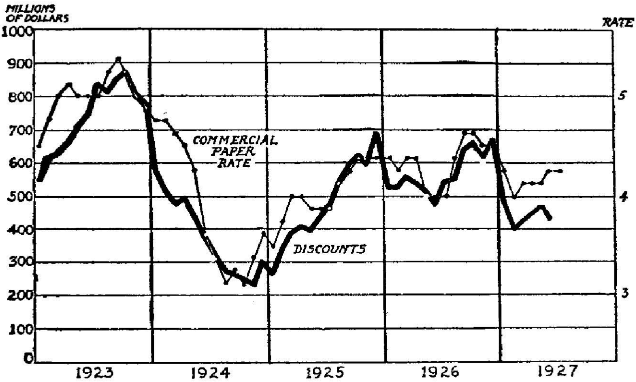


DIAGRAM 30—OPEN-MARKET INTEREST RATE FOR PRIME 4–6 MONTHS' COMMERCIAL PAPER AND MONTHLY AVERAGES OF DAILY BILLS DISCOUNTED FOR MEMBER BANKS BY ALL FEDERAL RESERVE BANKS.

market. The remarkable parallelism between these two lines is perhaps best explained as a result of the tradition discussed in the preceding paragraph. When the member banks find themselves continuously in debt at the Reserve Banks, they take steps to pay off that indebtedness. They tend to sell securities, call loans, and restrict their purchases of

commercial paper. The consequence is that when a large number of member banks are in debt money generally becomes firmer, commercial paper sells less rapidly, and rates increase. Conversely, when most of the member banks are out of debt at the Reserve Banks, they are in a position to invest their funds, and money rates, including commercial-paper rates, become easier. This relationship rests on the unwillingness of banks to remain in debt at the Reserve Banks.

If the discount rates of the Reserve Banks were high the unwillingness of member banks to stay in debt could easily be accounted for on that ground alone. But the Reserve Banks have seldom charged rates above the rates banks have charged their customers, and tradition is probably more important than the rate in preventing continuous borrowing.

In certain states where there have been large numbers of bank failures in recent years, and where the position of the banks is scrutinized for any sign of weakness, the feeling against showing bills payable to a Reserve Bank in a bank statement has been carried to an unfortunate extreme, and has spread from banker to general public. This is, of course, a temporary situation and the psychological background in these states and elsewhere may change at any time and banks may feel that occasional indebtedness to a Reserve Bank is normal.

The Discount Rate.—To the general public the discount rate has become the symbol of Federal Reserve policy. Because changes in the discount rate have been so widely commented upon in the press and in economic literature, they have assumed

an importance far beyond their purely economic significance as changes in the price which member banks pay for accommodation at a Reserve Bank.

The importance of a change in discount rate lies principally in its being a public recognition by a group of responsible and well-informed people of a change in the credit situation. For example, a change in the discount rate from 4 to 3½ per cent is equivalent to an announcement that credit conditions are easier, and the Reserve Bank making the change feels justified in lending its money at a little lower rate.

Discount rates do not change frequently. In the past five years the Federal Reserve Bank of New York has changed its discount rate ten times, or twice a year on the average. Thus an announcement of change has also the importance of rarity.

A change of discount rate is voted by the board of directors of a Reserve Bank and then approved by the Federal Reserve Board.[1] Under the ordinary procedure a discussion of the discount rate is on the agenda for every meeting of Reserve Bank directors. The discussion is facilitated by the presence of memoranda, reports, and charts, such as those used to illustrate this and the following chapter. When once the directors have agreed upon a change, the decision is telephoned or telegraphed to the Federal Reserve Board for its approval. The Federal Reserve Board convenes at once to consider the matter and usually gives its approval or disapproval im-

[1] Since this was first written the Federal Reserve Board has in one instance initiated a change in rate at a Reserve Bank. Question has been raised as to whether this action was legal.

mediately. Immediate action is possible because there has usually been preliminary informal discussion of the prospective change. A change in rate is usually announced at the close of business that same day. No reasons for the rate change are ordinarily given out, partly because the decision represents the views of so many people, who have perhaps acted for somewhat different reasons, that it would be an extremely difficult and time-consuming task to phrase a statement which would fairly represent the views of all the directors of the Reserve Bank concerned and the members of the Federal Reserve Board, and partly because it would be equally difficult to make any statement which did not either exaggerate the importance of the change or minimize it. Such a statement is always subject to misinterpretation, as has been repeatedly illustrated. Instead of making statements explaining specific rate changes, the Reserve System has followed the practice of making public in its reports, as fully as possible, the data which the Federal Reserve directors and Board have before them when they make their decisions.

PRECEDENT OF LIMITED VALUE.—In making decisions as to discount rates the Reserve System has found precedent of limited value. This is partly because there has been in this country since 1920 an unprecedented situation as to gold reserves. In Europe the practice had been for banks of issue to raise their rates when necessary in order to protect their gold reserves, and reduce them when this protection was no longer necessary.

The Reserve Banks have held such large reserves

that there has been no time in the past six years when concern for their protection was necessary. On the contrary, the incoming gold might in any different circumstances have caused considerable embarrassment. Instead of considering means of attracting gold it has been necessary to consider means of repelling it.

The mechanical means of measurement by which banks of issue have in the past watched their gold positions has been the reserve ratio. Such a ratio is published as a part of the weekly statement of the Federal Reserve System. In our case it is the ratio of total reserves to liabilities for Federal Reserve notes and deposits. During the war years this ratio was something of a guide to credit policy just as the reserve ratio of the Bank of England has always been a guide to the directors of that institution. Historically, banks of issue the world over have watched their reserve ratios and, other things being equal, have raised their discount rates when the reserve ratio went down, and lowered discount rates when it went up. In 1919 and 1920 we had to watch our reserve ratio closely, for at times it came close to the minimum, and in 1919 and 1920 the sinking of the reserve ratio was one of the factors making discount rate increases imperative.

Then as gold poured into the country in 1921 and 1922 the reserve ratio rose by leaps and bounds and lost its significance as a guide to credit policy. Since then discount rates have been increased or decreased without any necessary relation to the movement of the reserve ratio. The ratio is now so far above the legal minimum, and in fact so far above any work-

ing minimum which might reasonably be set by custom or policy, that its movement for the System as a whole can, for the present, be ignored. Thus one time-honored mechanical aid to rate policy has had to be discarded.

Another frequently quoted rule of thumb from British experience which has not appeared to be applicable in this country has been the rule that the discount rate should be "above the market." The Bank of England has always maintained its discount rate above the open-market rate on bankers' acceptances, the paper which the bank discounts and to which the discount rate applies. In this country there was, and to some extent still is, a school of thought which felt that this rule should be taken over bodily, despite a very different banking organization. The rule is interpreted to mean that the discount rate of a Federal Reserve Bank should be above the open-market rate or bank rate to a customer on commercial paper, the general type of paper to which the discount rate applies. The general principle back of this rule was that banks should not be able to make money by borrowing at a Reserve Bank.

The application of this formula to this country needs close scrutiny. For in the first place it should be noted that the whole structure of the London and New York markets is different and the term "discount rate" means totally different things in the two markets. The outstanding difference for the purpose of this discussion is that the British banks make advances to their customers largely in the form of overdrafts and do not require the promis-

sory notes which are in general use in this country. The British bank does not ordinarily borrow directly from the Bank of England, but adjusts its position through its holdings of bankers' bills and Treasury bills and its loans to bill brokers. These bill brokers, when necessary, sell bills to the Bank of England at the discount rate or borrow from the Bank on bills. The rates at which the British banks lend to their customers are usually somewhat above the Bank of England discount rate. The discount rate in this country applies to the promissory notes which member banks present with their indorsement to the Reserve Banks or to the member banks' own notes secured by their customers' notes or by government obligations. These two situations are so different that there is certainly no presumption that a formula which applies in one case should apply in the other.

But the formula is so often quoted that it may be worth while to carry the scrutiny further. Would it be possible or desirable for the Reserve Banks to keep their discount rates above the rates banks charge their customers and thus make it unprofitable for banks to borrow—make the rate a penalty rate?

There are several practical difficulties—one of which is that there is no uniformity in the rates banks charge their customers; there is no "market" for customers' commercial paper. At the present time of writing (June, 1927) New York City banks are charging their best customers 4¼ to 4½ per cent, while country banks in New York and New Jersey are charging 6 per cent and country banks in

parts of the West and South, where there is no competitive market for money, are charging 8 per cent or more. But clearly a discount rate of over 6 per cent in New York and over 8 per cent in some of the Southern and Western districts would prohibit borrowing.

The problem is perhaps clarified by a closer analysis of the economics involved. It should be noted that the commercial paper a member bank brings to a Reserve Bank for rediscount is quite different from open-market commercial paper or the notes a bank receives from its customers. The difference consists in a bank indorsement. The member bank puts its own name on commercial paper when it brings the paper to a Reserve Bank. When a bank accepts a bill of exchange it charges from 1 to 2 per cent per annum for its guaranty, and this may be taken as some guide to the value of a bank indorsement. Thus if a member bank lends its commercial customer on his note at 5 per cent, the value of this note with a bank indorsement might be represented by a rate not far from 3½ to 4 per cent. If the Federal Reserve Bank rate is 4 per cent, it is really equal to or above the rate which represents the paper's true value, and offers no temptation to the member bank to borrow. When a bank lends money to a customer it assumes considerable risk. It assumes also the cost of serving the customer. This risk or cost is not passed on to the Reserve Bank when the member bank has indorsed the paper and made itself responsible for payment. It is, therefore, logical that the rate at which member banks lend to customers should be higher than the Fed-

eral Reserve discount rate without necessarily offering temptation to member banks to borrow. Banks in large centers which figure their risks and their expenses carefully do not ordinarily feel that they are making a profit by borrowing and relending the funds. The case is somewhat different with banks outside of the money centers which charge their customers higher rates. But presumably the risks and costs of administration which these banks assume are correspondingly higher.

A Fair Price for Reserve Money.—Even though the foreign precedent that the discount rate should be above the market has not been found a practical guide in this country, nevertheless the Federal Reserve authorities have found one of their most important guides for rate policy in the movement of money rates in the open market. By the practical test of trial and error it has been found that a discount rate between the open market rate for commercial paper and the open market rate for ninety-day bankers' acceptances is a rate at which member banks will usually borrow freely to meet the seasonal or unusual needs of agriculture, production, and trade, but will not ordinarily borrow for investment or speculative loans.

Diagram 31 shows the way in which the discount rate of the Federal Reserve Bank of New York has settled into a rather constant relation with open-market rates, for commercial paper and bills. The discount rate has moved within a ribbon whose borders are the commercial-paper rate and the bill rate.

There is probably a good reason behind the fact

that the relationships shown in Diagram 31 have been so steadily maintained. The Reserve Banks are buying credit instruments, termed "paper" by the banker, from their member banks and the discount rate is the price they pay for this paper. The price charged should be a fair price for the goods

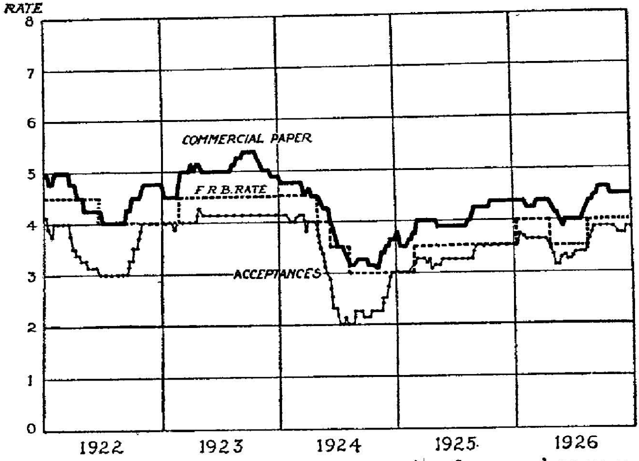


DIAGRAM 31—MONEY RATES IN NEW YORK: 4 TO 6 MONTHS' COMMERCIAL PAPER, 90-DAY ACCEPTANCES, AND THE DISCOUNT RATE OF FEDERAL RESERVE BANK OF NEW YORK.

purchased. If the price is fair the offerings of paper will naturally tend to be limited to the amount the banker must sell to meet his genuine needs for funds. What is a fair price for the paper the Federal Reserve Banks buy from member banks? It is paper that is better than open-market commercial paper because it bears the name of a member bank.

It is a little less good than most bankers' acceptances, for it bears the name of only one bank, and bankers' acceptances in the market frequently bear two bank names, both of them well known. A rate between the commercial-paper rate and the acceptance rate is thus logical and natural. This rate relationship, arrived at largely by experiment, thus appears to have a sound economic basis, and it represents not simply the adjustment of the discount rate to other money rates but also the adjustment of other rates to the discount rate.

It is also interesting to observe that in the whole scale of money rates in New York and London the discount rate here occupies a position not greatly different from the Bank of England discount rate. Suppose we take a time when the discount rates in both centers were the same, in May, 1924, and list the different rates which are typical in the two markets:

TABLE 12.—MONEY RATES AT LONDON AND NEW YORK

	London	New York
Bank loans direct to customers. . . .	5 (a)	4¾–5¼
Ninety-day time money on stock exchange.		3¾–4
Open-market commercial paper. . . .		4¼
Discount rate of bank of issue.	4	4
Three months' bankers' bills.	3	3¼
Short Treasury obligations.	2⅝	3

(a) = Approximate.

In studying this comparison of rates it should be remembered that the commercial banks in London do not ordinarily borrow directly from the Bank of England, but replenish their reserves by letting their bills run off, or calling loans to bill brokers, who in turn can, if necessary, sell bills to the Bank of England at the discount rate. Banks in this country can, and do, follow the same general course, but the more frequent procedure is to borrow directly from the Reserve Bank at the discount rate, using commercial paper or government securities as collateral. The discount rate applies to different paper in the two markets, but the cost of obtaining reserve funds is relatively not far different.

It, of course, remains to be seen whether the rate relationship which has maintained generally in the past six years will be a permanent one. The effectiveness of the discount rate is now due in part at least to the tradition against continuous borrowing. If this tradition should ever lose its power a higher rate, more in the nature of a penalty rate, might become necessary at times to prevent excessive borrowing. But at present the rate does appear to be generally effective.

While the movement of money rates offers the Reserve Bank directors and the Federal Reserve Board perhaps their best current guide in determining discount rates, there are many other factors which have to be considered. The judgment as to whether the discount rate should be maintained high or low relative to other money rates, and hence whether reserve money should be relatively easy or difficult to obtain, depends on other factors, all of

them indicators as to whether business is getting the credit it needs, or too little, or too much.

Volume of Credit.—Considerable guidance as to whether the discount rate should be lowered to make reserve funds easier to obtain or raised to make them harder to obtain, is secured by watching the changes in the volume of credit. For the past fifty years the total amount of bank loans and investments in this country has increased at the rate of 6 to 7 per cent a year in order to provide the funds required by the increasing population, the increasing volume of the nation's business, the increasing use of credit in business transactions, and the rising standard of living. There have been, of course, large variations from one year to another in the rate of increase of credit, and such variations are to be expected, as trade fluctuates and as methods of financing business change from time to time. The rate of growth in the past 50 years, during part of which prices were rising, may have been higher than is desirable in the future. But in general, departures from a steady rate of growth call for scrutiny and may give guidance in deciding policy.

In order to study currently the changes in the volume of credit in use the Federal Reserve Board at the end of 1917 set up a reporting system, under which several hundred (June, 1927, about 670) member banks in principal cities report each week through the twelve Reserve Banks their principal items of condition. These weekly figures reflect pretty accurately the banking trends throughout the country and give an early indication of any abnormal changes in the volume of credit.

Similarly, the condition of the Federal Reserve Banks themselves reveals immediately the current changes in the use of credit. Any abnormal expansion of credit usually leads immediately to additional demands upon the Reserve Banks for loans. These changes in the volume of credit are watched closely by those charged with the decisions as to discount rates.

How Credit is Being Used.—The next step to watching the changes in the volume of credit is the analysis of how credit is being employed as a basis for judging whether further increases are to be encouraged. The reports which the Reserve Banks receive from member banks and transmit to the Federal Reserve Board are itemized to give an analysis of changes in loans and investments to show whether increases are in loans on securities, or in other loans which are largely commercial in nature, or in investments. In January, 1926, a series of special reports by the New York City banks was inaugurated giving their loans to brokers and dealers secured by stocks and bonds.

From many other sources the Reserve Banks draw information as to how credit is being used. They receive from the Comptroller of the Currency, who is responsible for examining national banks, and from the state banking authorities, copies of the examinations of all member banks, analyzing the loans and investments of those banks. The Reserve Banks have their own examiners who work with the national and state authorities and keep constantly informed as to the character of loans the member banks are making.

Condition of Business.—Perhaps even more is learned from a continuous study of business conditions. When business is booming and employment is full, there is usually no need to make credit easier to obtain, but, on the contrary, that is frequently a time of danger when the proper policy should be one of caution and the price of credit should be relatively high. When, on the other hand, business

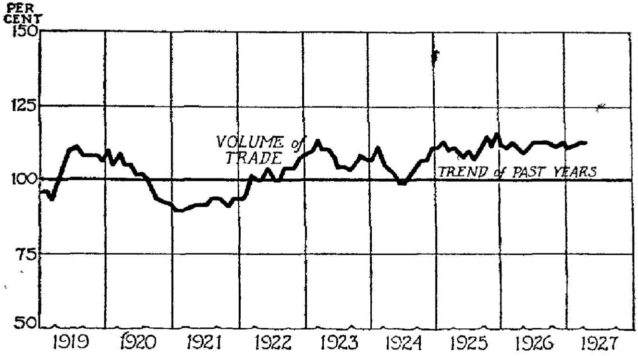


DIAGRAM 32—THE VOLUME OF TRADE COMPARED WITH THE TREND OF GROWTH OF PAST YEARS. (Index of 56 individual series combined and shown as percentages of the computed trend of past years.)

is in the doldrums and employment is slack, the price of credit may well be relatively cheap, aided by relatively low discount rates. A rate policy which, other things being equal, threw its influence towards firm money conditions when business was very active and towards easy money when business was in depression, might be expected to offer effective aid towards reducing the fluctuations of the business cycle. Thus a continuous study of the con-

dition of general business in relation to the trends of normal growth indicated by the experience of past years becomes an important aid in determining rate policy.

PRICES.—Another useful external measure of the relation between credit and business is found in the

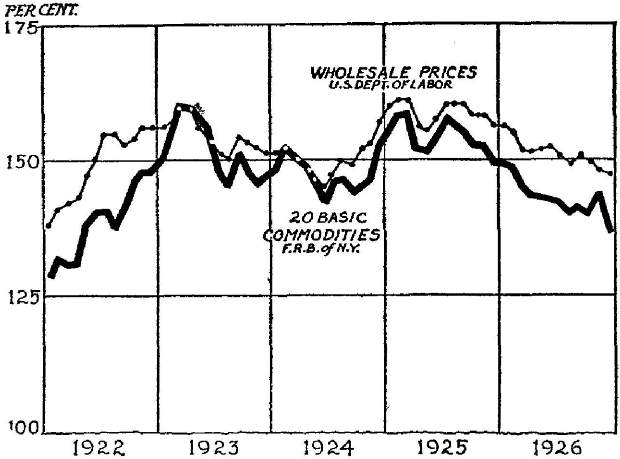


DIAGRAM 33—WHOLESALE COMMODITY PRICES IN THE UNITED STATES. (1913 = 100 PER CENT.)

movement of prices. When more credit is available than business can use profitably, credit tends to find its way into increases in prices; it may be prices of commodities, or wages, or securities, or real estate. Similarly, a scarcity of credit may lead to declining prices of one kind or another. Price changes are useful as danger signals. They are subject, however, to so many other influences besides domestic

credit conditions, that they cannot be wholly trusted as guides to policy. They are affected very largely, for example, by international conditions. Frequently, moreover, the evidence of price changes is mutually contradictory—one kind of price often goes up while another is going down. In 1925 and 1926, for example, wholesale commodity prices declined slightly while security prices rose.

INTERNATIONAL CONDITIONS.—At many points business and finance in the United States are influenced by conditions abroad, and this influence cannot be neglected in Federal Reserve rate policy. The condition of affairs in 1924 illustrates this principle. Gold was pouring into the United States from foreign countries at the rate of about $300,000,000 a year, largely because the countries of Europe had not yet been able to restore the gold standard. This gold flow carried a threat of serious inflation if it continued unabated. Money rates were higher here than in London. European crops had been poor, but power to purchase our crops was limited. Prices of farm products were declining. Domestic business was depressed. It was altogether a situation which easy money conditions were likely to benefit. Easy money would diminish the attraction for gold here. It would stimulate a flow of American capital abroad, which would aid Europe in her struggle back to the gold standard. It would enable Europe to purchase American farm products more freely, with consequently better prices for these products. These are just a few of the outstanding features. There were other considerations, but these are sufficient to suggest that at times the international

situation becomes one of the important features of discussions of Federal Reserve policy.

A Complex Problem.—The preceding paragraphs suggest a number of the factors which the board of directors of a Reserve Bank and the Federal Reserve Board consider when they make a decision with regard to the discount rate. There are certain mechanical aids to judgment in the movement of money rates, changes in the volume of credit, the way credit is being employed, changes in the volume of trade and prices, and the direction of gold movement. Seldom do all of these guides to policy point in the same direction and the importance of the different factors varies from time to time. In the last analysis, the question of a prospective rate change becomes a question of judgment as to whether slightly easier or slightly firmer money will have a beneficial influence on the whole business and credit situation. This judgment, moreover, must project itself into the future and consider the long time as well as the immediate effect of prospective changes.

In its nature a change in the discount rate, and in fact Federal Reserve policy generally, is more like a shotgun than a rifle. Policy can never be designed to deal with only one phase of a credit situation; its influence is upon the total volume of credit. For example, in the autumn of 1925 commodity prices were declining but stock prices were booming upward and the stock market was using constantly increasing amounts of bank credit. Business also was very active. A rate policy designed to make money easier in view of declines in prices

would probably have encouraged a wild speculation. Any discussion of rate policy which centers its attention on only one feature of the situation is futile. Rate changes cannot be aimed at any single target, but affect the whole volume of bank credit.

EFFECTS OF RATE CHANGES.—There is as yet available too limited experience to allow the drawing of any comprehensive conclusions as to the effects of changes in discount rates. One of the laws of scientific measurement is that the phenomenon to be measured must be isolated; another law is that valid conclusions can only be drawn from many cases. Discount rate action can never be isolated; it occurs simultaneously with many other causes. The same considerations which lead the Reserve Banks to raise their discount rates lead business men to exercise caution, and business prophets to issue warnings. There must be available many more cases of rate changes before final conclusions can be drawn as to their influence.

Certain tentative and limited conclusions do appear reasonable. First, it is evident that discount rate changes ordinarily have an immediate influence on short-term money rates. A study of Diagram 34 indicates that rate changes have usually followed some movement in open-market rates, but have in turn been followed by further changes of perhaps ¼ of 1 per cent in rates for commercial paper and bankers' acceptances. The extent to which discount rate changes have influenced other money rates has depended somewhat on the relative position of rates before the change.

There does not usually appear to be any direct

connection between the rate and the total amount of member-bank borrowing from the Reserve Banks. A decrease in rate does not immediately check a decline in borrowing, nor does an increase in rate usually check a rise in borrowing. Diagram 34 shows these figures for the New York Reserve Bank.

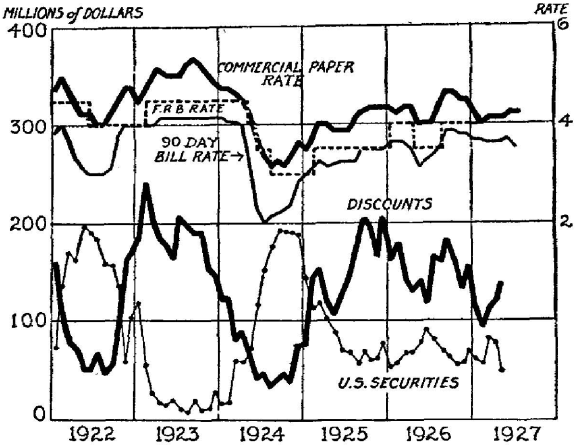


DIAGRAM 34—MONEY RATES AT NEW YORK AND DISCOUNTS AND UNITED STATES SECURITIES HELD BY THE FEDERAL RESERVE BANK OF NEW YORK.

Other possible causal relationships which will warrant careful exploration as more instances are available, include any connection between rate changes and security prices, rate changes and gold exports and imports, and rate changes and commodity prices. The evidence now available would appear to indicate that these relationships have been much closer at some times than at others.

But clearly any generalization on these points would be premature.

Perhaps the most important influence of the rate is one concerning which a satisfactory conclusion can never be drawn, and concerning which men will always hold widely differing opinions—the psychological influence. As a public pronouncement by well-informed men concerning the state of the credit situation, a discount rate change may have a large influence. How much and in what direction will always be in doubt.

So for the present at least every change in discount rate must be considered as in some measure an experiment in the technique of central banking. The guaranties against serious error are the trustworthiness and intelligence of those making the decision, the breadth of information available to them, and their maintenance of an open-minded attitude.

SUMMARY

1. Broadly speaking, the aim of Federal Reserve credit policy is to bring about an adaptation of the volume of credit to the volume of business.
2. The Reserve Banks cannot influence directly the ways in which credit is employed, but can influence only the total volume of credit. They deal with credit quantitatively and not qualitatively.
3. There are five principal restraints against the excessive use of Federal Reserve credit.
   A. Tradition against borrowing.

B. Discount rate.
C. Open-market operations.
D. Direct dealing with member banks.
E. Publicity.

4. Member banks are unwilling to remain in debt to a Reserve Bank for long periods. This tradition against continued borrowing is a powerful restraint against excessive borrowing.
5. A change in discount rate is important as a public recognition by a group of responsible and well-informed people of a change in the credit situation.
6. In deciding discount policy two European precedents have been of little value: the reserve ratio of the Reserve System has been so high that it had to be ignored; and the rule of thumb that the discount rate should be "above the market" has not proved applicable because of a totally different money-market structure, and different method of access to the bank of issue.
7. The discount rate should be a fair price for Federal Reserve funds. Some guidance as to the going price for money is furnished by the movement of money rates in the open market. In practice the discount rate has usually been between the open-market rates for ninety-day bankers' acceptances and 4 to 6 months' commercial paper.
8. Other factors to be considered in determining rate policy include:
   A. Changes in the total volume of credit in relation to the usual rate of growth which goes forward from year to year.

B. The ways in which credit is being used.

C. The condition of business.

D. The movement of all kinds of prices, including wholesale and retail commodity prices, security prices, rents, wages, etc.

E. International conditions, including their influence upon the movement of gold.

9. Thus a wide range of complex considerations enters into discount rate decisions. In the last analysis reliance must be placed on judgment rather than formulas.

10. Changes in discount rates have an influence on open-market money rates, but the psychological effect is probably equally important. Experience in this country with rate changes is too limited to justify final conclusions as to results.

CHAPTER XII

Credit Policy—Open-Market Operations

THE term "open-market operations" is used in two different senses. In a broad sense it is used to signify all those transactions in which the Reserve Banks employ their funds besides their loans to member banks. In this sense open-market operations include the purchase and sale of bankers' acceptances, of government securities, and of other limited types of securities eligible for purchase, as prescribed in Section 14 of the Federal Reserve Act. In a narrower sense the term is used to signify only those transactions in which the Reserve Banks ordinarily exercise the initiative, that is the purchase and sale of government securities.

Since this is a chapter on Federal Reserve credit policy, it will be devoted largely to a discussion of the narrower field of open-market operations, the purchase and sale of United States Government obligations, because it is mainly in these transactions that policy finds positive expression. But before concentrating upon this one type of open-market operation it may be well to pause a moment to remind ourselves of the scope of the open-market operations of the System in their broader aspects.

Broad Powers in Open Market.—The Federal Reserve Act gives the Reserve Banks broad powers to deal in the open market, that is to deal in specified

matters with individuals and concerns other than the member banks. These powers are defined in Section 14 of the Federal Reserve Act. Aside from the power to deal in gold, which is essential to any bank of issue, the powers include the right to buy or sell the following securities:

Cable transfers, bankers' acceptances, and bills of exchange arising out of commercial transactions and of specified maturities.

Bonds and notes of the United States.

Bills, notes, revenue bonds, and warrants of states, cities, or other political subdivisions in the United States (maturity not over six months from date of purchase).

Acceptances or debentures of Federal Intermediate Credit Banks and National Agricultural Credit Corporations.

Farm-loan bonds.

There are certain notable omissions from the list: the Reserve Banks have no power to buy corporation stocks, bonds, or notes, nor the obligations of foreign governments nor long-term obligations of states or municipalities.

While the list of securities which the Reserve Banks can buy is a fairly long one, and while some purchases have been made of practically each one of the items listed, open-market purchases are in practice confined principally to bankers' acceptances and United States Government obligations. Other purchases have been small and infrequent.

Policy in Buying Bills.—The general plan under which the Reserve Banks buy bankers' acceptances, or bills, has been discussed at some length in previous chapters. Generally the Reserve Banks stand

ready to purchase bills which are offered to them, at rates which are fixed from time to time in accordance with market conditions. These rates are usually close to the rates at which the bills sell in the open market. The purchase of bills is in one important respect similar to discounting paper for member banks, in that the usual control the Reserve Banks exercise over the volume of bills purchased is a rate control, a control of the price. But the fixing of the price for buying bills is much less a matter of policy than the fixing of the discount rate for loans. The buying rate for bills follows very closely the open-market rates for bills and does not ordinarily reflect judgment as to the general credit situation.

Dealings in Government Securities.—It is in transactions in United States Government securities that Federal Reserve policy finds more direct expression. For purchases and sales of these securities are usually made on the initiative of the Reserve Banks themselves.

There are, it is true, certain transactions, even in government securities, in which the Reserve System is passive except for rate control. These transactions have already been referred to in Chapter VI; they are the purchase of government securities under sales contract. In order to support the market for short-term government obligations, the Reserve Banks stand ready to buy these obligations from dealers under an agreement by which the dealer contracts to repurchase the securities within a period of fifteen days. Operations of this character, however, only occur at intervals and the amounts

involved are relatively small, seldom larger than 15 or 20 million dollars. To the extent that they do take place, they result in putting additional amounts of Federal Reserve credit into the market at times when money is in active demand and thus relieving strain.

But the transaction in which Federal Reserve open-market policy finds its most important expression is the outright purchase or sale of United States Government obligations. These purchases or sales of securities are at times as effective an instrument for influencing the credit situation as the discount rate, or any other instrument of policy which the Reserve Banks possess. They are, moreover, a method for preparing for discount rate changes and making them more effective, as will appear upon examination.

Immediate Effect.—Without careful analysis it might be supposed that the effect on the credit situation of a purchase of government securities by the Reserve Banks would be an immediate increase in the total volume of credit. The Reserve Bank purchasing the securities pays for them with Federal Reserve funds. The seller of the securities deposits these funds in his own bank, and that bank in turn deposits the funds in the Federal Reserve Bank and thus finds itself in the possession of additional reserves which might conceivably form the basis for making additional loans or investments. Since these are reserve funds they might form the basis for an increase in the volume of bank credit considerably greater than their dollar amount. One might expect, therefore, that purchases of govern-

ment securities by the Reserve Banks would result, first, in an increase in the total loans and investments, or total earning assets, of the Reserve Banks; and, second, in an increase of several times that amount in the total volume of bank credit in use.

As a matter of practice this seldom takes place. It was noted in the preceding chapter that whenever the member banks are in debt at the Reserve Banks they try to pay off that indebtedness. Under these conditions, when a member bank receives a Federal Reserve check put into the market through the purchase of government obligations, that bank will use the check to liquidate any borrowings from the Federal Reserve Bank rather than use it for a further extension of credit. In case the member bank receiving the check is not in debt at the Reserve Bank and therefore employs the funds by purchasing additional investments or making additional loans, the extra amount of credit thus put into the market usually finds its way promptly to some bank which is in debt at the Reserve Bank. Thus the usual effect of a purchase of government securities by the Reserve Banks is a corresponding reduction in the borrowing of member banks.

The effect is not limited, however, to member-bank borrowing, but purchases of securities may result in a reduction of the amount of credit dealers in bills or securities are receiving from the Reserve Bank under sales contract agreement; or they may result in a reduction in the amounts of bills which are sold to the Reserve Banks. But since the borrowing of member banks is ordinarily the largest element in the total credit extensions of the Reserve

Banks, it usually feels most directly the results of security purchases.

Thus the usual effect of purchases of securities by the Reserve Banks is not an increase in their total loans and investments, but rather a reduction in loans which about offsets the purchase of securities and leaves the total little changed. Furthermore, there is little immediate increase in the volume of member-bank credit. This rule does not hold when the banks in the principal money centers owe the Reserve Banks little or nothing. This state of affairs has been rare, but was present in 1922 and 1924 for several months.

Conversely, when a Reserve Bank sells government securities it receives in payment a check drawn on some member bank. This check is chargeable against the reserve deposit of the member bank at the Reserve Bank, and the member bank, unless there is some offsetting credit, finds itself deficient in its reserves. In order to correct this reserve deficiency the member bank either borrows from the Reserve Bank or sells it bills, or else throws the burden on some other bank by selling investments or calling loans to brokers in the open market. The net result is usually an increase in member-bank borrowings or in some other form of Reserve Bank credit.

This general tendency for the purchases or sales of government securities to be almost directly offset by changes in other forms of Reserve Bank credit in employment is illustrated in Diagram 35. In a sense one may speak of total holdings of govern-

ment securities as assets which have been voluntarily acquired by the Federal Reserve Banks, whereas loans to member banks, bill holdings, and holdings of bills and government securities under sales contract, have been acquired in a sense involuntarily,

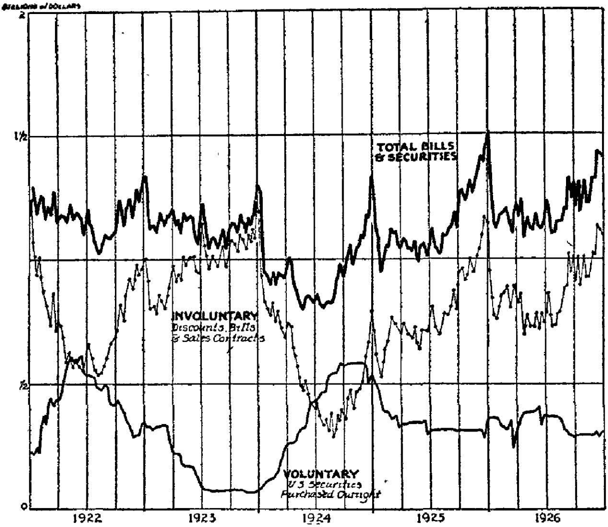


DIAGRAM 35—CHANGES IN KINDS OF FEDERAL RESERVE CREDIT IN USE.

because the initiative in each case has been taken by the bank requesting the loan or the bank or dealer offering the securities. It will be observed that increases or decreases in holdings of govern ment securities purchased outright (voluntary) have been accompanied by almost corresponding changes in bills discounted, bankers' acceptances held, and

holdings of bills and securities under sales contract (involuntary).

Not an Aid to Earnings.—There are a number of interesting implications which follow from the relationships just described. Some years ago, before there had been any considerable experience in the operations of the Reserve System, it was believed that the purchase of government securities by the Reserve Banks was a means of increasing their earning assets and thus supplementing their earnings. In fact, it is probable that the management of some of the Reserve Banks held this view early in 1922, when large increases in holdings of government securities were made. But it soon developed in experience that such purchases did not ordinarily result in increasing the total earning assets of the System, but simply changed one kind of earning asset for another kind. Increases in government securities were offset by decreases in bills discounted and bankers' acceptances. Furthermore, the yield from the government securities was usually less than the yield from loans to member banks, and thus the purchase of government securities diminished instead of increased the earnings of the Reserve Banks. Thus, while in the early days the Reserve Banks had sometimes purchased government securities for the purpose of supplementing their earnings, this has not been the reason for such purchases in recent years. The only times at which the purchase of government securities would result in an increase in the earning assets of the System and in increased earnings would be times when the member banks, and particularly the member banks in money cen-

ters, were substantially out of debt at the Reserve Banks.

How Policy Is Served.—What are, then, the effects of purchases and sales of securities from the point of view of Federal Reserve policy? What may the Reserve Banks hope to accomplish by these open-market operations? It might seem from the foregoing paragraphs that, since the purchase or sale of securities does not ordinarily affect the amount of Federal Reserve credit in use, that therefore such purchases and sales would not have any effect on the credit situation. But this conclusion is not warranted.

The influence of these operations lies in their effect upon the amount of indebtedness of member banks to the Reserve Banks. By increasing their holdings of government securities the Reserve Banks lighten the indebtedness of the member banks, and by selling securities they increase this indebtedness. The significance of this operation arises from the unwillingness of the member banks to remain continuously in debt at the Reserve Banks. Their lending and investing policy is very closely related indeed to the amount of their indebtedness at the Reserve Banks. This relationship was illustrated by Diagram 30 in Chapter XI, which shows that interest rates have fluctuated in close relationship with the amount of member-bank borrowings at the Reserve Banks.

The result of open-market operations may be summarized by saying that purchases of securities by Reserve Banks tend to relieve member banks from indebtedness to the Reserve Banks, and thus lead

them to adopt a somewhat more liberal lending policy. Money rates become easier. Such purchases tend to create a borrower's market. Conversely, sales of securities by the Reserve Banks increase member-bank borrowing and lead the banks to adopt a somewhat less liberal lending policy. Money rates grow firmer. Sales of securities tend to create a lender's market.

It can thus be seen that buying and selling securities is not only an important independent influence on the credit situation, but may and often has been used as a means of preparing for discount rate changes and making them more effective. For open-market operations serve to increase or decrease the amount of borrowing subject to the discount rate. If the member banks are not borrowing, any change of discount rate is ineffective, except for its psychological influence. On the other hand if the member banks are borrowing heavily even a small change of discount rate is effective. Thus the effectiveness of discount rate changes depends not a little upon the amount member banks are borrowing.

Organization for Open-Market Operations.—Prior to 1922 there was no thoroughgoing attempt to coordinate the open-market operations of the twelve Federal Reserve Banks. Each Reserve Bank purchased and sold bankers' acceptances and government securities in accordance with the decision of its own directors, and executed these orders through whatever channels it chose. One consequence of this procedure was that there was constant danger that the Reserve Banks would be competing with one another in the open market, and by creating, more-

over, an artificial market for government securities, complicate the Treasury's program of financing. Because of this danger the governors of the Reserve Banks in the spring of 1922, at their annual spring meeting, appointed a committee consisting of the governors of the Federal Reserve Banks of Boston, New York, Philadelphia, and Chicago (the governor of the Cleveland bank was added later), whose duty it would be to execute purchases and sales of government securities at the request of the different Federal Reserve Banks. It was understood that all transactions not purely local in character should be executed through this committee. The organization of this committee was an important forward step in that it did away with competition between the Reserve Banks in the central money market. Concerning the relation of the work of this committee to the several Reserve Banks the following statement was made by Governor Strong of the New York bank before the House Committee on Banking and Currency in April, 1926:

> It is important to know, however, that the supervision of these purchases and sales by the committee was not intended and never has been intended to extend into any interference with the local autonomy of any Reserve Bank, or its relations with its member banks, or its dealing in government securities with its member banks. It simply had to do, in the first instance, with the execution of orders in an orderly way in the open market.

This method of handling System purchases and sales of securities was reviewed by the Federal Ad-

[1] Stabilization Hearings before the Committee on Banking and Currency, House of Representatives—H. R. 7895, Sixty-ninth Congress, first session, p. 310.

visory Council in September, 1922, and approved. In October of that year, by agreement among the governors of the Federal Reserve Banks, the duties of the committee were extended into the field of policy when the committee was asked to make recommendations from time to time to the Reserve Banks with regard to their purchases and sales of government securities.

The next important step was taken in the spring of 1923, when the Federal Reserve Board reorganized the committee procedure by itself appointing an open-market investment committee, which consisted of the same members as the old committee which had been appointed by the governors themselves. In its new form the committee carried the additional authority of appointment by the Federal Reserve Board.

The principles to be followed by this committee and the terms of its appointment were set forth by the Federal Reserve Board as follows:

"That the time, manner, character, and volume of open-market investments purchased by Federal Reserve Banks be governed with primary regard to the accommodation of commerce and business, and to the effect of such purchases or sales on the general credit situation.

That in making the selection of open-market purchases, careful regard be always given to the bearing of purchases of United States Government securities, especially the short-dated issues, upon the market for such securities, and that open market purchases be primarily commercial investments, except that Treasury certificates be dealt in, as at present, under so-called 'repurchase' agreement.

In order to provide for the proper administration of

the policy defined above, the Board rules that on and after April 1, 1923, the present committee of governors on centralized execution of purchases and sales of government securities be discontinued, and be superseded by a new committee known as the open-market investment committee for the Federal Reserve System, said committee to consist of five representatives from the Federal Reserve Banks and to be under the general supervision of the Federal Reserve Board; and that it be the duty of this committee to devise and recommend plans for the purchase, sale, and distribution of the open-market purchases of the Federal Reserve Banks in accordance with the above principles and such regulations as may from time to time be laid down by the Federal Reserve Board." [1]

In the autumn of 1923 a still further step in coordinating System open-market policy was taken, when arrangements were made, with the approval of the Federal Reserve Board and the boards of directors of all twelve Federal Reserve Banks, for the creation of a System open-market investment account and to be increased or decreased by the committee, with the approval of the Federal Reserve Board and the directors of the Federal Reserve Banks. The holdings in the special investment account were to be prorated among the several Reserve Banks with due regard to the size of the different banks, their holdings of other earning assets, etc.

It was the understanding that this special investment account should be used as an instrument for carrying out Federal Reserve policy. It offered a

[1] Stabilization Hearings before the Committee on Banking and Currency, House of Representatives—H. R. 7895, Sixty-ninth Congress, first session, p. 311.

more effective means towards this end than any operation which involved dealing with securities held by the twelve different banks in their own vaults. Changes in the holdings of government securities by the Reserve Banks since 1923 have reflected largely the changes in this special investment account, whereas changes before that time represented largely the individual action of the twelve Federal Reserve Banks operating independently.

The machinery for handling open-market operations has changed little since 1923 beyond the changes in smoothness of operation which ordinarily accompany experience with such an organization. The responsibility of the committee for supervising the purchase and distribution of bankers' acceptances, as well as government securities, is now more clearly recognized than it was at the beginning, and the methods of dealing with specific money market situations have been more fully worked out.

Since the principal money market of the country is in New York City, the Federal Reserve Bank of New York has executed the majority of the orders of the committee and the governor of the New York Bank has served as the chairman of the committee.

In addition to its supervision over domestic operations the open-market investment committee has supervised arrangements made by the Reserve Banks with foreign banks of issue and the earnings from such transactions have been divided among the Federal Reserve Banks which have wished to participate. The central task of the committee, however, has been to make recommendations to the

Federal Reserve Board and to the boards of directors of the several Federal Reserve Banks concerning open-market policy, and to execute the policies agreed upon.

Effects of Buying and Selling Securities.—The major operations undertaken by the Federal Reserve System in the purchase or sale of government securities have been as follows:

January,	1922—May,	1922,	purchase of	$400,000,000
June,	1922—July,	1923,	sale of	525,000,000
December,	1923—Sept.,	1924,	purchase of	510,000,000
November,	1924—March,	1925,	sale of	260,000,000
April,	1926		purchase of	65,000,000
August,	1926—Sept.,	1926,	sale of	75,000,000

The purchases in 1922, occurred at a time when business was just recovering from the depression of 1921 and when agricultural prices were seriously depressed. These purchases, together with gold imports, had the effect of enabling member banks to diminish their indebtedness at the Reserve Banks from over 1 billion dollars to 400 millions, and thus put the banks of the country in a position to advance funds more freely to their customers, and aided in the recovery of business and agriculture from the conditions of 1921. Since part of the purchases occurred when member banks in principal centers were largely out of debt to the Reserve Banks and purchases were accompanied by gold imports, there was following the purchases an increase in the total amount of bank credit in use. The purchases were followed by reductions in the discount rates of several of the Reserve Banks.

The sale of securities from June, 1922, to July,

1923, took place at a time when business recovery had progressed to a point where excesses were beginning to appear, prices were rising rapidly, a labor shortage was beginning to be apparent, and there was some evidence of overproduction. The sale of securities resulted in an increase in the direct borrowing by member banks and thus put more largely upon the member banks the responsibility for the amount of credit in use, and at the same time the cost of borrowing was increased by increases in the discount rates of the New York, Boston, and San Francisco Reserve Banks. The sales, together with rate changes, probably aided in giving stability to the situation and preventing a period of overexpansion.

The purchases between December, 1923, and September, 1924, which were the first ones to be handled as a part of the joint investment account, were made at a time of some business recession and price decline. They were made at a time also when certain of the European countries were beginning to consider the return to a gold standard. This attempt would be considerably furthered by moderately easy money conditions in the United States, which would make credits more easily available for those countries. The purchases during 1924 had the effect of diminishing the amount of indebtedness of member banks at the Reserve Banks, and particularly the indebtedness of member banks in principal cities. Simultaneously, a number of the Reserve Banks lowered their discount rates. This made it possible for the member banks to extend credit more freely and money conditions were con-

sequently easy. As in 1922, there was a considerable increase in the total volume of credit.

The sale of securities between November, 1924, and March, 1925, was made at a time when business was at a high level, speculation was active, and prices were rising. It had the effect of increasing somewhat the responsibility of the member banks for the current amount of bank credit in use, and led the way to an increase of the discount rate by the New York Reserve Bank.

The purchase and sale in 1926 were smaller in amount but occurred under circumstances somewhat similar to those described in the preceding paragraphs.

It is, of course, impossible to give in a few paragraphs a complete analysis of the conditions which surrounded the open-market operations which have just been reviewed, but the general principles perhaps appear from the foregoing very brief statement. A further illustration of some of the broad movements related to open-market operations is shown in the accompanying diagram. One may summarize the relationships which the diagram illustrates by saying that purchases of securities have taken place in periods of business recession, price weakness, and disturbed psychology, and that the purchases have usually been accompanied and followed by a reduction in member-bank indebtedness at the Reserve Banks, easier money, and on two occasions by increases in the total volume of credit. They have frequently been accompanied or followed by reductions in discount rates. On the other hand, sales of securities have taken place at times of great

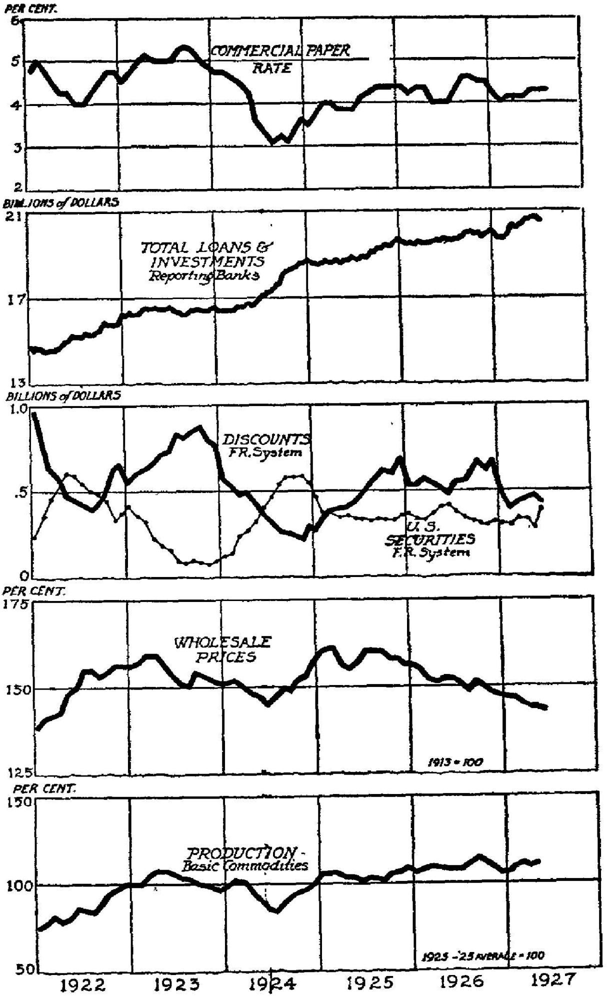


DIAGRAM 36—VOLUME OF DISCOUNT AND OPEN-MARKET OPERATIONS AND SOME OF THE RELATED ECONOMIC MOVEMENTS.

business activity, rising prices, and speculative tendencies. The sales have usually been followed by increases in member-bank borrowings and increases in discount rates, and, in sequence, by greater stability in the total volume of credit.

One is tempted to try to trace further the causal relationship between open-market operations and the condition of business, commodity prices, movement of the stock market, and so forth, but clearly the experience in these matters has covered too brief a time to make possible any safe generalization. Open-market operations have been only one of a large number of factors which have been present during the period under review. It has been a period during which the informed public has scrutinized the business and credit situation carefully and constantly and has tended itself to apply the correctives to any unhealthy situation. It is impossible as yet to reach definite conclusions as to how far the movements which have taken place are due to Federal Reserve operations and how far to other causes.

Open-Market Operations and the Discount Rate.— The two main instruments of credit policy—discount rates and open-market operations—are not wholly separate and unrelated. In practice they have been used, as the foregoing paragraphs have suggested, to supplement each other. Open-market operations frequently pave the way for discount rate changes. By buying securities the Reserve Banks enable member banks to liquidate some of their indebtedness and to lend more freely, and the usual consequence is easier money rates, which in turn make a reduc-

tion in Federal Reserve discount rates logical. Conversely, the sale of securities tends to increase the indebtedness of member banks and to make money rates firmer, and may pave the way for an increase in discount rates. Open-market operations may also

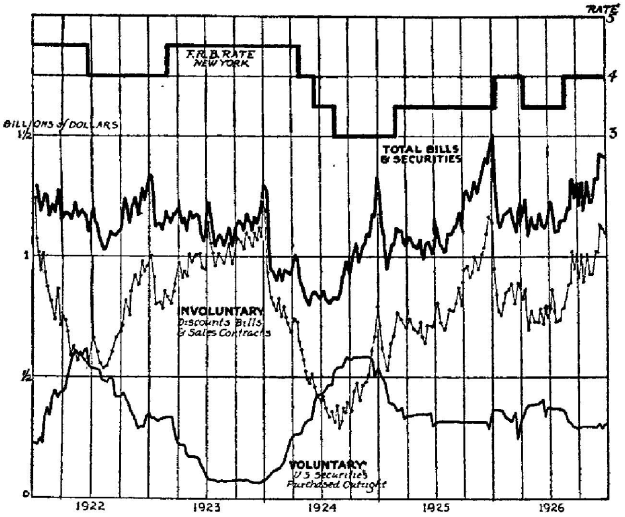


DIAGRAM 37—BY BUYING SECURITIES THE RESERVE BANKS ENABLE MEMBER BANKS AND THE MARKET TO LIQUIDATE SOME OF THEIR INDEBTEDNESS AND TO LEND MORE FREELY, AND THE USUAL CONSEQUENCE IS EASIER MONEY RATES WHICH IN TURN MAKE A REDUCTION IN FEDERAL RESERVE DISCOUNT RATES LOGICAL.

be undertaken following a change in discount rates to make the discount rate more or less effective. The foregoing diagram indicates the relationship between discount-rate changes of the Federal Reserve Bank of New York and System open-market operations.

Other Operations.—In addition to the open-market operations as a matter of general credit policy which have been discussed in the preceding pages, purchases and sales of government securities for the special investment account are used at times, usually in small amounts and for brief periods, to exercise a stabilizing influence in the money market.

One illustration of this type of operation is furnished by the transaction that is often carried through at the quarterly tax periods. On the 15th of March, June, September, and December, when the Treasury redeems large amounts of certificates and borrows from the Reserve Banks temporarily to bridge the gap pending the receipt of proceeds from income-tax checks, a large amount of Treasury money is thrown into the market. When the banks are heavily in debt they use these funds to repay their indebtedness at the Reserve Banks, and the market is not disturbed. But at times when the member-bank indebtedness is small, the putting out of 150 to 200 million dollars or more of Treasury money sometimes results temporarily in very easy money. In order to "mop up" some of this plethora of funds in the market at these periods, the open-market investment committee has sometimes sold securities from the special investment account under an agreement to repurchase them within a few days. The effect of this arrangement is to enable the member banks to employ their surplus reserves and thus prevent disturbance to the money market.

Another somewhat similar transaction has been the occasional purchase of securities for the special investment account over the last week of the year,

when there is an unusually heavy demand for funds, and the sale of these securities after the turn of the year. The purchase of perhaps 50 millions of securities in the last week of December has had the effect of putting funds into the money market to meet the extraordinary demands of that season, and to avoid too great stringency; and the later sale of these securities in January has had the effect of abating somewhat the ease which usually characterizes that period due to the return flow of currency from circulation and the transfer of funds from the interior to the money centers.

Still another important type of operation has been the purchase or sale of securities to neutralize effects of gold movements on the money market. A purchase of gold by the Reserve Banks has the effect of putting money into the market, but any influence on money conditions can be avoided if sales of securities are made simultaneously to take an equivalent amount of funds out of the market. Similarly, gold sales can be offset by purchases of securities. In this way sales and purchases of securities in April, May, and June, 1927, neutralized the influence of large purchases and sales of gold at that time.

SUMMARY

1. While the Federal Reserve Act gives the Reserve Banks broad powers to deal in the open market, the majority of operations in practice is in bankers' acceptances and government securities; and

open-market policy finds expression largely in purchases and sales of government securities.

2. Purchases or sales of government securities by the Reserve Banks do not ordinarily increase or diminish the amount of Reserve Bank credit in use, for they are usually offset by changes in member-bank borrowing and acceptances owned.
3. Purchases of government securities do not ordinarily increase the earnings of the Reserve Banks, because purchases are offset by declines in other earning assets.
4. The effectiveness of purchases and sales of government securities as an instrument of policy lies in their effect on the indebtedness of member banks at the Reserve Banks. Purchases enable member banks to pay off loans and thus tend to make money easier; sales lead banks to borrow more heavily and thus tend to make money firmer. Government security transactions supplement and enforce discount policy.
5. Coordination of System open-market operations is secured through a committee of governors of five of the Reserve Banks.
6. Purchases of government securities have usually been made in periods of business recession and price weakness, and have usually been followed by the credit conditions which may be described as a borrower's market.
7. Sales of government securities have usually been made in periods of very active business, rising prices, and heavy speculation, and have usually been followed by the credit conditions which may be described as a lender's market.

8. Experience is too limited to justify final conclusions as to the extent of the influence of purchases and sales of securities. They have been simultaneous with many other influences on the credit situation tending to operate in the same direction.
9. Aside from operations as matters of general credit policy, purchases and sales of securities are made at times to stabilize the money market against unusual temporary disturbing influences such as Treasury tax-day operations or gold movements.

CHAPTER XIII

OTHER INSTRUMENTS OF POLICY

IN the chapters just preceding are discussed the two outstanding methods by which Federal Reserve policy finds expression—the discount rate and open-market operations. It is the purpose of this chapter to deal with two other policy instruments, which are less commonly recognized, but are important means for aiding in the adjustment of the volume of credit to the volume of business. These two instruments are the direct dealing with individual banks, and publicity.

Dealing With Individual Banks.—Discount rate and open-market operations are impersonal and general in their operation, but the adjustment of credit to trade is, in the last analysis, personal and individual. Just as the volume of bank credit is decided when the banker and business man sit down together and decide on a line of credit, so the amount of Federal Reserve credit in use is at least in part determined when officers of the member bank and the Reserve Bank sit down together. The proper use of reserve funds is probably determined as largely through individual negotiations between the Reserve Banks and the member banks as by more abstract decisions as to discount rates and open-market operations.

The principles governing the arrangements which

the Reserve Banks make with individual member banks as to their borrowing were set forth in the annual report of the Federal Reserve Board for the year 1926, as follows:

In general, the basis of credit to be extended by a Reserve Bank to its member banks is defined in Section 4 of the Federal Reserve Act, which states that the board of directors of a Reserve Bank shall "extend to each member bank such discounts, advancements, and accommodations as may be safely and reasonably made with due regard for the claims and demands of other member banks." This statement in the basic law of the Federal Reserve System underlies to a large extent the policy of the Reserve Banks and their attitude in individual cases toward extending credit to the member banks. The principle set forth in the Act goes beyond the question of the technical eligibility and even of the intrinsic soundness of paper offered by a member bank to a Reserve Bank. Even where the paper is unexceptionable in every respect, the Reserve Bank must be fully assured in addition that further credit may be granted to this member, not only "safely and reasonably," but also "with due regard for the claims and demands of other member banks."

This question arises not infrequently in cases where a member bank remains continuously in debt to a Reserve Bank for a considerable length of time. In such cases inquiry may fairly be made as to whether the member bank's use of Reserve Bank credit does not in effect amount to increasing its own capital out of Reserve Bank funds. Such use of funds arising from a cooperative pooling of bank reserves, which is the basis of the Federal Reserve Banks' lending power, would not be in accordance with the spirit of the Federal Reserve Act and would not be fair to the other member banks which may be active competitors of the borrowing bank. It may

also impair the ability of the borrowing bank in case of insolvency to meet its obligations to depositors.

Though there are circumstances that may explain and justify continuous borrowing by a member bank over a considerable period of time, particularly if the need for the borrowing arises from general economic conditions in the borrowing bank's locality, the funds of the Federal Reserve Banks are primarily intended to be used in meeting the seasonal and temporary requirements of members, and continuous borrowing by a member bank as a general practice would not be consistent with the intent of the Federal Reserve Act. In most cases the member bank can make adjustments of different kinds in its own affairs, which will enable it to repay its borrowings at the Reserve Bank and at the same time to strengthen its own position. The bank may find it advisable, for example, to increase its own capital or to bring about a better adjustment of the volume and maturities of its investments to the credit requirements of its local customers.

In using their influence to discourage member banks from making continuous use of the lending facilities of the Reserve Banks, the operating officials of the Reserve Banks are not only protecting the resources of the Federal Reserve System as a whole, but are also helping individual member banks to conserve their capacity to borrow at the Reserve bank at times when adverse economic conditions in their localities and among their customers may make additional dependence upon the resources of the Reserve System not only justifiable but necessary. In this manner the Reserve Banks are not only discharging their responsibility to the member banks under the Act, but are also exerting their influence toward sounder general banking conditions in the interests alike of the member banks, their depositors, and the public.[1]

[1] Thirteenth Annual Report of the Federal Reserve Board covering operations for the year 1926, pp. 4, 5.

METHODS USED.—With most of the member banks no question ordinarily arises concerning the safety or reasonableness of their borrowing from the Reserve Banks. Out of over 9,000 member banks the average number borrowing each month from the Federal Reserve System is usually in the neighborhood of 3,000, and the banks which are borrowing are constantly changing. The temporary character of most of the loans is indicated by the fact that the average maturity is about eight days. There is, of course, a difference between the city and country banks in this regard. The city banks, whose business naturally turns over much more rapidly than the country banks, usually borrow for only one day at a time, and if it is necessary to continue the loan for more than one day they ordinarily make a new loan. The banks in small communities, on the other hand, whose business ordinarily turns over more slowly, usually borrow for longer periods. Banks borrow generally to meet seasonal and other temporary needs for funds and pay off their loans when the temporary needs are passed. Since the unusual demand for funds falls on different banks at different times, there are always some banks borrowing, although the number borrowing is usually larger in the spring and summer when seasonal needs are felt in the largest number of banks.

In dealing with most of the member banks it is possible, with propriety, to give the banks ready access to the borrowing facilities of the Federal Reserve Banks without the necessity for special negotiation for each loan. Applications for loans and discounts are received by mail or messenger and

TABLE 13.—NUMBER OF MEMBER BANKS ACCOMMODATED THROUGH DISCOUNT OPERATIONS, BY MONTHS[1]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914.											132	339
1915.	398	469	570	606	693	813	760	711	761	794	835	754
1916.	614	451	535	606	655	678	642	483	448	383	336	314
1917.	309	262	315	384	590	900	860	990	953	1,140	1,574	1,701
1918.	1,432	1,353	,1568	2,100	2,793	3,021	3,462	3,671	3,464	3,610	3,667	3,288
1919.	3,316	3,091	3,575	3,875	4,035	4,047	3,685	3,460	3,722	3,839	3,649	3,659
1920.	3,461	3,338	3,670	4,175	4,642	4,948	4,858	4,780	4,758	4,952	5,275	5,551
1921	5,293	5,107	5,320	5,568	5,632	5,745	5,607	5,453	5,437	5,572	5,622	5,676
1922	5,350	4,847	4,701	4,738	4,636	4,436	4,167	4,042	3,944	3,793	3,859	3,873
1923.	3,294	2,976	3,282	3,507	3,942	3,999	4,110	3,960	3,600	3,752	3,732	3,698
1924	3,663	3,465	3,516	3,744	3,795	3,706	3,432	3,052	2,786	2,663	2,573	2,783
1925.	2,554	2,415	2,731	3,016	3,209	3,289	3,207	2,979	2,729	2,796	2,876	3,021
1926.	2,838	2,659	3,045	3,155	3,282	3,458	3,190	3,016	2,879	2,856	2,871	3,024

acted upon immediately, in much the same way as the commercial bank extends loans to a commercial borrower after his line of credit has been established. There are usually some banks, however, which tend to overuse the borrowing privilege, and careful provision has to be made to prevent its misuse. As an example of the methods which are employed to prevent too constant or too large use of the borrowing facilities of the Reserve System, the following methods are employed by the Federal Reserve Bank of New York:

(1) Bank examinations by state and national authorities are analyzed in order that Reserve Bank officers may be familiar with the condition and methods of operation of each member bank.

(2) A special list of banks is maintained whose general condition is in one way or another unsatisfactory, and loans to this group of banks are scrutinized with particular care.

(3) Every bank which is continuously in debt at the

[1] Thirteenth Annual Report of the Federal Reserve Board covering operations for the year 1926, p. 89.

Reserve Bank for what seems an unreasonably long period in view of the nature of its business is made the subject of special inquiry to determine the necessity for the borrowing.

(4) Every bank borrowing in excess of its capital and surplus is automatically listed for observation.

Thus in every case where the borrowing threatens to become unreasonable in amount or duration, or unsafe, the bank is made the subject of special inquiry and is reminded of the principles governing the use of Federal Reserve credit. On rare occasions it has been necessary to prescribe for individual banks lines of credit which they should not exceed, and at times to insist upon liquidation of borrowings. In dealing with such cases it is never possible to lay down rigid rules, but each case has to be considered on its own merits.

The limited number of banks which have borrowed in large amounts for as long as a month is shown by the following table, taken from the annual report of the Federal Reserve Board for 1926. It shows for quarterly dates the number of member banks that had been borrowers continuously for a month or more at a Reserve Bank in an amount exceeding the borrower's capital and surplus.

Particular significance attaches to borrowings in excess of capital and surplus, because prior to the establishment of the Federal Reserve System national banks were not permitted by law, with certain exceptions, to borrow in excess of their own capital. Thus member banks that are borrowing in excess of that amount have been enabled to do so by provisions of the Federal Reserve Act, and the

System, therefore, has a special interest in observing the extent to which this privilege is utilized.

TABLE 14.—NUMBER OF MEMBER BANKS BORROWING IN EXCESS OF CAPITAL AND SURPLUS CONTINUOUSLY FOR A MONTH OR MORE[1]

Year	March	June	September	December
1923.....	(a)	(a)	543	357
1924.....	326	431	364	179
1925.....	140	218	202	133
1926.....	111	193	198	113

(a) Not available.

In their relations with individual member banks the Federal Reserve Banks encounter a series of problems not unlike, in their variety and complexity, the problems which the commercial bank encounters in its contacts with its borrowing customers. Each case is unique and requires individual treatment, although there are certain broad principles which apply to all.

Take as an example the perplexing problem of lending to a bank in the farming area of the Middle West in recent years. The First National Bank of Crestland is loaded with doubtful farm paper, much of it representing sometime equities in real estate. They bring all their good paper to the Reserve Bank to rediscount. Shall the Reserve Bank take it and lend them the money? If the Reserve Bank refuses,

[1] Thirteenth Annual Report of the Federal Reserve Board covering operations for the year 1926, p. 5.

failure may follow. If it makes the loan, it assumes the responsibility of continuing in operation a bank probably insolvent. If failure should then come the depositors might find much of the good assets rediscounted at the Reserve Bank and unavailable to pay depositors. The Reserve Bank must consider not only the safety of its loan, but the interests of the depositors. Can the bank be saved by a loan? If not, will the depositors be better off under an immediate liquidation, or a later liquidation, when the bank may have dissipated many of its best assets? These are some of the questions the Reserve Bank has to face. The answer depends on a careful scrutiny of each bank, in constant cooperation with state and national supervisory authorities.

This is, of course, an extreme case, but all Federal Reserve loans in greater or less degree involve credit problems with many of the same earmarks as the problems faced by commercial banks in their lending operations, with this addition: that the Reserve Banks have always to consider the public interest and the impartial service of all member banks. In no phase of Federal Reserve operations has the experience of the past few years proved of more value. There is increasing understanding by the member banks of the principles of the use of reserve funds, and the Reserve Banks have been developing more fully their standards of practice.

Publicity.—Still a fourth method of assuring an intelligent and proper use of Federal Reserve funds has been the publication by the Federal Reserve System of a wide range of information, not only concerning the Federal Reserve System itself but

concerning credit and business conditions. The published statement by the Federal Reserve Board of the condition of the Federal Reserve System is one of the most complete and revealing statements published by any bank of issue in the world, and in addition the Federal Reserve Board publishes in weekly form a report of the condition of member banks in principal cities and reports of the volume of bank transactions in principal centers throughout the United States. Weekly reports of gold exports and imports at New York and daily foreign exchange rates at New York are released by the New York Reserve Bank. Each Federal Reserve Bank publishes a monthly review of credit and business conditions, and the Federal Reserve Board publishes a monthly bulletin containing a comprehensive review of credit and business conditions. Copies of these publications go not only to the member banks, but to the general public as well.

This wide range of information available to the banker and to the public forms a background in view of which banker and business man may make wise decisions as to their use of credit. The availability of this information may well be as important a factor making for financial stability as discount or open-market policy.

SUMMARY

1. The amount of Federal Reserve credit in use is determined in part by individual negotiations between the Reserve Banks and their member banks.

2. It is the accepted general principle that Federal Reserve funds should be used in meeting seasonal and temporary requirements of member banks and not for capital uses.
3. This principle is followed by most of the member banks as indicated by the rapid turnover of Federal Reserve loans and the constant change in the list of borrowing banks.
4. To guard against abuse of the borrowing privilege and to safeguard the interests both of the Reserve Bank and the bank depositor, the Reserve Banks make a continuous study of the condition of the member banks.
5. All Federal Reserve loans involve in greater or less degree credit problems akin to the credit problems of the commercial bank, with the addition that the Reserve Banks must put the public interest ahead of all other considerations.
6. The publication by the Reserve System of comprehensive information covering its own operations and credit and business conditions is a further important aid towards financial stability.

CHAPTER XIV

The Gold Paradox

FEDERAL Reserve credit policy has encountered perhaps its most perplexing problem since the war in the huge import movement of gold which has increased the monetary gold stock of the United States from $2,700,000,000 in June, 1920 to $4,600,000,000 in March, 1927. The way in which the Federal Reserve mechanism and Federal Reserve policy reacted to this gold movement illustrates certain of the virtues and limitations of the Reserve System. The net result of it all was an economic paradox, which has puzzled the economists of the world.

Gold and Prices.—The paradox was to be found in the unusual relationship of gold and commodity prices. Economic theory for many years has recognized a close relationship between the gold supply and commodity prices. Increases in a country's gold supply have led to increases in the supply of money. Increases in the supply of money have usually been associated with increases in commodity prices. But since the spring of 1921 the gold stock of this country was increased by 50 per cent, while the index of the general level of commodity prices showed almost no net change. Theoretically a gold inflation seemed inevitable. But no such result was reflected in the commodity-price figures.

Observing this curious phenomenon, many have reached the conclusion, not unnaturally, that the happy result may be traced wholly to the credit policy of the Federal Reserve System. This belief was expressed by Sir Josiah Stamp, the eminent British economist, in an article in the *London Observer* of December 5, 1924. In discussing a possible price inflation in the United States, he said:

> The memories of 1920-21 make the banking authorities exceedingly nervous. They accordingly have a "credit policy" which by a complex process keeps prices steady, partly by "sterilizing" the gold as it arrives, and acting almost as though it does not exist.

It is safe to say that this explanation by Sir Josiah Stamp has been the one most commonly accepted, not only abroad, but in this country as well. It is an explanation which warrants most careful scrutiny. What has been the complex process by which incoming gold has been sterilized and prices kept steady?

Pre-war Gold Movements.—As a background for an understanding of the economics of gold imports, the facts as to the movement may first be considered. Before the World War the stock of monetary gold in the United States was estimated at $1,900,000,000. In pre-war years this stock had been increasing on the average at the rate of about 60 million dollars a year, partly from domestic production and partly from net imports from abroad. At times the increase was more rapid than at others, and at times, particularly during the '90s, there was a net loss of gold.

These pre-war movements of gold were accom-

panied by related changes in bank deposits and in prices. Over periods when gold came in slowly or was drawn out, prices declined but when the imports were larger, as from 1896 to 1907, prices advanced. A rather constant ratio of demand deposits to gold was maintained: deposits were roughly four or five times as large as the country's gold stock. The banking law of the country prescribed the amount of reserves the banks should maintain, and gold and gold certificates made up a large part of these reserves. When gold imports arrived and were deposited in the banks they increased bank reserves and supported expansion of bank loans and deposits. Conversely, gold exports reduced bank reserves and tended to retard the growth of bank loans and deposits. Prices and bank deposits were closely related, though deposits reflect the normal growth of the country's business and therefore show a constant upward trend which is not true of prices. To the extent that the increase in gold stock and bank deposits was just sufficient to keep up with the growth of population and trade, prices were ordinarily not affected, but when gold stock and bank deposits grew faster than trade, prices tended to rise, and conversely, when their rate of growth was less than the rate of growth of trade, prices tended to decline.

The pre-war relation between gold stock, bank deposits, and prices is shown in Diagram 38.

In interpreting diagram 38 it is necessary to add one most important qualification to the foregoing discussion. While the particular data shown in the diagram are for the United States they are simply

illustrative of a world relationship. The changes in bank credit and prices in this country paralleled similar changes in the countries of Europe. The history of past years teaches that commodity price

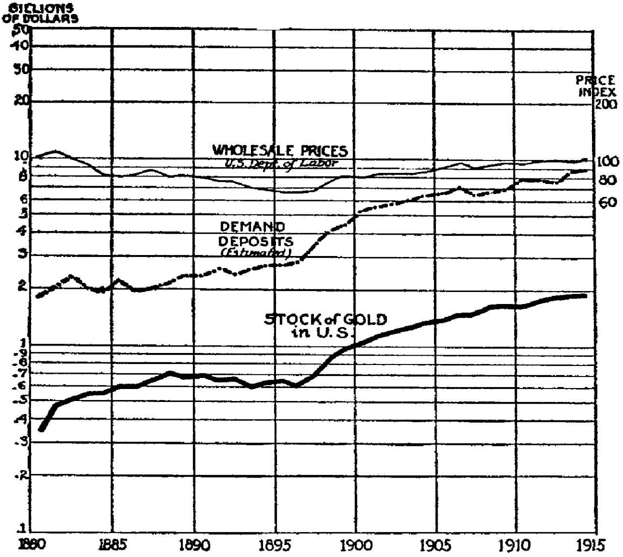


DIAGRAM 38—BEFORE THE ESTABLISHMENT OF THE FEDERAL RESERVE SYSTEM, BANK DEPOSITS RESTED DIRECTLY ON THE COUNTRY'S GOLD STOCK AND BOTH BANK DEPOSITS AND PRICES FELT THE IMPACT OF CHANGES IN THE GOLD STOCK.

movements are world phenomena and no single country can depart from world trends except for brief periods. In fact the only notable examples of divergence from world tendencies by particular countries have been those occasions when prices have been measured in depreciated currencies. The

divergences are probably greater in other prices such as wages, rents, and securities than those for commodities at wholesale. Wholesale commodity prices are largely determined in world markets whereas these other sorts of prices are affected more completely by domestic conditions.

War and Post-war Movements.—When the World War broke out the world's gold equilibrium was upset. Europe urgently required food and munitions and paid in any way she could, by loans, by selling securities, and by gold. The consequence was a gold flow of quite unprecedented size to the United States, which had food and munitions to sell.

A comparison between the gold flood of recent years and the modest pre-war shipments is made in Diagram 39.

The flood that started in 1915 continued until this country entered the war in April, 1917. Then the allied nations borrowed, instead of paying with gold, and gold exports were allowed only under special license. There were neither imports nor exports of gold in any quantity. In 1919, with the removal of these restrictions, this country lost gold to the neutral countries from whom it had purchased raw materials for war use. But towards the end of 1920 the gold flood from Europe began again, and from that time to the autumn of 1924 brought here over a billion and a half dollars worth of gold. Since 1924 the flow has varied in direction and has more nearly resembled the pre-war movement.

The first large gold import in 1915 and 1916, accompanied as it was by urgent competitive demand

for various war materials, and huge foreign borrowing and spending here, was followed by the usual economic consequences. As the gold stock increased, bank deposits expanded and prices rose just as they were rising in European countries. A paper-currency inflation abroad was paralleled by something of a

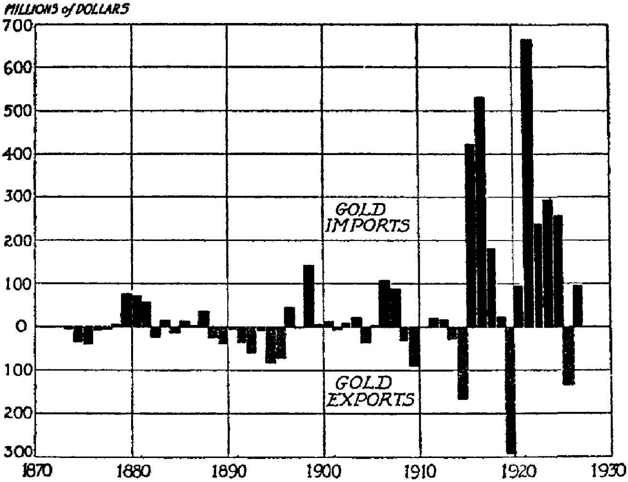


DIAGRAM 39—YEARLY NET IMPORTS AND EXPORTS OF GOLD SINCE 1873.

gold inflation here. During this period the Reserve Banks had just been organized; little of their credit was in use; and they had little influence on the situation.

But with the entry of the United States into the war in 1917 unusual credit developments began to appear. Without any further additions to the gold stock, and without leaving the gold standard, this

country began a large credit expansion to meet war demands. Prices rose also.

In 1921 the operation was reversed. Gold imports were heavier than ever before, over 650 million dollars in one year, but bank deposits and prices declined.

In 1922, 1923, and 1924, as gold imports continued at a rate of 250 to 300 million dollars a year, the economic consequences were somewhat more orthodox, for bank deposits increased, and at first there were some commodity price increases, but the price increases were short-lived. It was the failure of prices to continue their upward movement, together with the wholly contrary events of 1921, which proved puzzling to economic authorities.

In attempting an explanation of these perplexing events, it is well to consider first what happened in 1917, 1918, and 1921, and then to deal separately with the later movement, which reflected the influence of a number of new factors.

A Cushion of Reserve Bank Credit.—The unusual relationships between gold, bank deposits, and prices, from the spring of 1917 to the end of 1921, can perhaps be explained best in connection with Diagram 40.

As the diagram indicates, there was during this period no close relationship between the changes in the stock of gold in the country and the changes in bank deposits,[1] notwithstanding the fact that the country during the entire period remained on a gold basis. The explanation of this paradox is found in

[1] Demand deposits are used—the active deposits which presumably are most closely related to price changes.

the use of Federal Reserve credit. In 1917, when war demands for credit and currency called for increases in bank reserves, the banks supplemented their reserves by borrowing from the Federal Re-

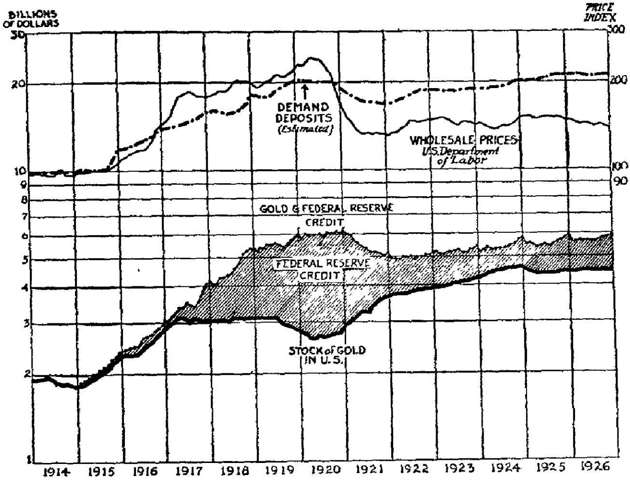


DIAGRAM 40—SINCE THE ESTABLISHMENT OF THE FEDERAL RESERVE SYSTEM BANK DEPOSITS HAVE RESTED ON GOLD PLUS FEDERAL RESERVE CREDIT, AND A CUSHION OF FEDERAL RESERVE CREDIT HAS BROKEN THE IMPACT ON BANK DEPOSITS OF CHANGES IN THE GOLD STOCK. THE GOLD MOVEMENT HAS NOT HAD THE SAME EFFECT ON PRICES AS BEFORE THE OPERATIONS OF THE SYSTEM. THE SHADED PART OF THE DIAGRAM, FEDERAL RESERVE CREDIT, REPRESENTS THE TOTAL AMOUNT OF CREDIT EXTENDED AT DIFFERENT TIMES BY THE RESERVE BANKS.

serve Banks. The balances at the Reserve Banks which the member banks obtained by this borrowing could be counted as reserves, just the same as balances created by the deposit of gold, or they might be withdrawn in currency. Thus, Federal

Reserve loans supplemented our gold supply; and the country's bank deposits rested not on gold alone, but on gold plus Federal Reserve credit. As the war progressed banks borrowed still more largely at the Reserve Banks, and the country's bank deposits rested still more largely upon Federal Reserve credit. This is the same principle that was discussed in Chapter III. By centralizing bank reserves the Federal Reserve Act made it possible in emergencies to use those reserves more fully. The method of use was simply the extending of loans by the Reserve Banks, secured by commercial paper and government bonds, or the investment by these banks in bills or government securities.

The use of Federal Reserve credit as a supplement to gold was most extensive in the autumn of 1920, following gold exports and continued expansion of bank deposits.

Towards the end of 1920 the situation changed abruptly. Prices and business activity were moving to lower levels, credit needs were thus reduced, and deposits began to decline. At the same time gold imports began in large volume. Under the old banking system the natural result of these gold imports would have been an increase in the volume of credit, just at a time when less credit was required. But the increase in gold and the lessened credit demand were both offset by decreases in Reserve Bank credit. As bank loans were liquidated and as gold flowed in from abroad, the member banks paid off their loans at the Reserve Banks. Thus the basis for credit was automatically reduced.

This may be put another way by saying that dur-

ing this period, from 1917 to the end of 1921, Federal Reserve credit acted as a kind of cushion between gold movements and bank deposits. It broke the impact of gold exports or imports upon bank credit and made possible a continuous adjustment of credit to the needs of business.

It should be observed that there was nothing particularly complex or mysterious about this whole operation. In amount it probably surpassed anything which the devisers of the Federal Reserve Act had in mind, but it was, nevertheless, a logical use of the machinery of the Reserve System for enlarging the basis of credit in times of emergencies. Of course Federal Reserve policy, in fixing the discount rate, had something to do with the amount of Federal Reserve credit that was called into use during the war period and the rapidity with which it was retired in 1921. But in neither of these movements was the policy principally devised as a means of offsetting gold movements, but rather with regard to the domestic credit situation. It was in no sense a mysterious gold policy.

It may further be noted at this point that the usefulness of the Federal Reserve System in offsetting the influence of gold imports depended upon the existence of a volume of Federal Reserve credit outstanding, which might be liquidated in an amount equal to gold imports. If gold imports in large volume should occur at a time when the member banks owed the Reserve Banks nothing, and the Reserve Banks had no acceptances or government securities which could be liquidated, it might be expected that gold imports would have their usual

pre-war effect upon bank deposits and upon prices of one kind or another, unless unusual measures were taken.

1922 to 1926.—As has been indicated, the gold, credit, and price relationships since 1922 have been of a different character from those of the preceding period. The first important difference has been that in the recent period gold imports have been accompanied by large increases in bank deposits. Between January, 1922, and January, 1927, the country's gold stock was increased by about 850 million dollars. During this same period demand deposits of all banks in the country have increased about 5 billion dollars, or about six times as much as the increase in the gold stock, and there has been an increase of about 8 billion dollars in time, savings, deposits. Thus, since 1922 gold imports appear to have had something of their usual relationship to the amount of credit in use.

But this increase in bank deposits has not been accompanied by any corresponding increase in commodity prices. In January, 1927, the index figure for wholesale commodity prices compiled by the U. S. Department of Labor was 147, compared with 138 in January, 1922, an increase of only 6½ per cent. This lack of parallelism between bank deposits and prices could be made the subject of an exhaustive economic treatise. The briefest plausible explanation seems to be that the credit was used for other purposes. It financed an increase in the volume of trade larger than the usual year-to-year growth, including a huge amount of new building construction and an extraordinary growth in the automobile in-

dustry. It financed as well a large increase in wages, an increase in real estate values, a record-breaking volume of new financing both domestic and foreign, and an increase in security prices. But in the field of commodity prices it encountered resistance—resistance from business which was practicing a new efficiency based partly upon low inventories, and, of much more importance, a resistance from foreign markets where credit was dear and economy necessary. These years have provided an interesting demonstration of the truth that wholesale commodity prices are influenced more by world conditions than by domestic conditions.

It is not true to say that the gold imports since 1921 have brought with them no increase in prices. They brought no important increase in commodity prices, but have had their effect on wages, and on prices of real estate and securities. An attempt to picture these relationships is made in Diagram 41. The best measure of the influence of increased credit on prices is probably to be found in an index of the general price level, which includes wages of workingmen, rents, and retail prices, as well as wholesale commodity prices. This index has moved in some relationship with bank deposits, though the use of deposits in financing the large volume of trade, new financing, etc., has given them an employment which may account for the more rapid growth of deposits than the general price index.

Thus the first characterization of the 1922 to 1926 period of gold imports is that gold imports had something of their normal pre-war influence, espe-

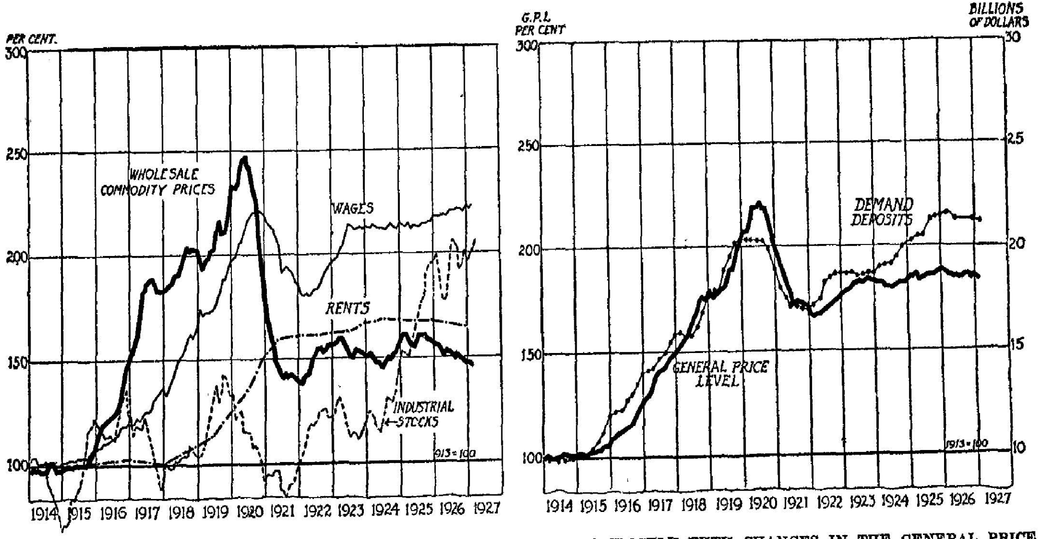


DIAGRAM 41—CHANGES IN DEMAND DEPOSITS HAVE MOVED MORE CLOSELY WITH CHANGES IN THE GENERAL PRICE LEVEL THAN IN SPECIFIC KINDS OF PRICES, SUCH AS WHOLESALE COMMODITY PRICES, WAGES, AND RENTS.

cially when we analyze closely the influence on prices of various kinds.

Federal Reserve Gold Policy.—The second important feature of the period is that it marked the development of Federal Reserve policies designed specifically to deal with the gold movement. Whereas the adjustment of Federal Reserve credit to gold changes from 1917 through 1921 had been in large measure semi-automatic, and subordinated of necessity to other considerations, the adjustment of the later period was more conscious and more specific in aim. Federal Reserve gold policy found expression in four ways:

1. Resistance to secondary expansion.
2. Putting gold into circulation.
3. An open-market and discount policy adjusted to gold movements.
4. Aid to restoration of the gold standard abroad.

These policies did not completely sterilize the imported gold; they tended to reduce its influence and sought to correct the chief cause, which was unstable currencies abroad. The operation of each of these policy methods can be described without encountering serious technical difficulties.

1. Resistance to Secondary Expansion

The meaning of this somewhat obscure phrase may perhaps be explained most readily by following through a typical gold import.

A shipment of gold bars packed in boxes is unloaded from the steamer to an armored car and taken to the Federal Reserve Bank under the care

of a representative of the Twelfth National Bank to whom the gold was shipped. The Reserve Bank receives the gold and pays for it, giving the Twelfth National a credit in its reserve balance immediately for a large percentage of the volume of the gold, and in a few days for the rest after it has been weighed. Other imports of gold may be handled through the United States Assay Office, but the ultimate result is the same: some bank, the Twelfth National in this case, finds its balance at the Reserve Bank increased by the amount of the gold imported.

If the Twelfth National is in debt at the Reserve Bank it can use this balance to pay off its debt or to make further extensions of credit. When banks are out of debt and find themselves with any excess credit at the Reserve Bank, they, of course, put it to work. This credit becomes the basis for an increase in bank deposits several times the amount of the credit, just as did gold imports before 1914. We may call the resulting increase in bank credit *primary expansion.* It is the direct and inevitable result of gold imports when member banks are out of debt at the Reserve Banks and when the Reserve Banks hold no securities they can sell to offset the movement. In 1922, for example, total bank deposits increased about 4½ billion dollars and in 1924 about 3½ billions, largely due to gold imports when banks in New York and other principal cities were mostly out of debt at the Reserve Banks, and no accompanying sales of securities were made by the Reserve Banks.

There is another further or *secondary expansion* which may, but does not necessarily, take place When the incoming gold is deposited in the Federal Reserve Bank, it does more than increase the reserve balance of the member bank; it increases the gold holdings of the Reserve Bank and hence its power to make loans and investments. Since a Reserve Bank only needs to retain a 35 per cent reserve against deposits and a 40 per cent reserve against notes, it can make loans or investments equal to between 2 and 3 times the amount of new gold it receives, depending upon whether this gold is paid to the Reserve Bank to pay off a debt or is deposited and increases the deposit liability. On the basis of the 1½ billions of gold received since 1920 the Reserve Banks could have made loans to member banks, or investments of over 3 billion dollars, in addition to the 3½ billions of loans and investments outstanding in the autumn of 1920. If this additional amount of Reserve Bank credit had been put into use a much larger increase of member-bank credit certainly would have been built upon it, running as high as 10 to 15 billion dollars.

But there has been no such secondary expansion resulting from gold imports since 1920. Reserve Bank loans and investments have been reduced, not expanded.

There are two strong restraints against secondary expansion. The first is the member bank's reluctance to borrow heavily at a Reserve Bank. This reluctance is partly due to the pressure of the Federal Reserve discount rate. But member-bank pol-

icy as to borrowing goes beyond considerations of profit. It is not regarded as sound banking for a bank to be always leaning on the Federal Reserve. The member banks generally have been unwilling by borrowing to put to its full use the huge hoard of gold acquired by the Reserve Banks.

The second barrier against secondary inflation has been the influence of the Reserve Banks themselves. It is the business of the Federal Reserve Banks to fix their discount rates and pursue their open-market policy "with a view of accommodating commerce and business," as the Federal Reserve Act puts it. It would clearly be contrary to the best interests of commerce and business to encourage a great credit and price inflation through putting to full use the gold stored in the Reserve System. The Reserve Banks have refrained from investments which would put the new gold to work, and their discount and open-market policy has tended from time to time to discourage its use by the member banks.

Because of these restraints, secondary expansion, on the basis of the new gold, has been, in the past, as it will be in the future, restrained. Ordinarily, under present conditions the only effect of imported gold on the credit situation is felt through whatever primary expansion takes place upon its receipt. It should perhaps be added that primary expansion alone gives incoming gold a credit-making power fully as large as in pre-war days. That a secondary expansion is mechanically possible is due solely to the elasticity of the Federal Reserve System, designed for emergency, not ordinary use.

2. Putting Gold into Circulation

During the war gold certificates were largely retired from circulation and were replaced by Federal Reserve notes, which require only a 40 per cent gold reserve instead of the 100 per cent which gold certificates require. Since July, 1922, gold certificates have again been placed in circulation and the yellow-backed tens and twenties are again a common sight. About 1,100 million dollars of them are now again in use—nearly the same amount as before the war. It has been supposed by some that Federal Reserve Banks, by placing imported gold in circulation in this form, have sterilized it—have prevented it from having any influence on the credit situation. As a matter of fact this action has had no such sweeping effect, but has simply been a psychological aid to avoiding secondary expansion.

The effects of issuing gold certificates may be seen by reviewing what happens when gold enters the country. When the member bank by the sale of imported gold obtains a credit at the Reserve Bank, this credit may be used to pay off indebtedness at the Reserve Bank or may be used as a basis for an expansion of bank loans and deposits, which we have called primary expansion. What the Reserve Bank does with the gold later does not affect this first primary expansion in any way, but has its influence solely on any possible secondary expansion. Suppose that a Reserve Bank after receiving a gold shipment of 1 million dollars decides to put 1 million dollars of gold certificates into circulation. The method is the same as any commercial bank

would use. Just as a commercial bank has a stream of currency coming in at the receiving teller's window and a stream going out the paying teller's window, so the Federal Reserve Banks have a stream of currency coming in and another going out, but by truck loads instead of in small packages.

The Reserve Bank ordinarily exercises no more choice as to how much currency will be paid out in a day than does the commercial bank. It responds to the demands of its customers. So when a Reserve Bank decides to put gold certificates into circulation it does not force them out. The yellowbacks are simply paid out in response to currency demand instead of Federal Reserve notes. There is no increase or decrease in the amount of money in circulation. One million dollars of gold certificates is substituted in circulation for 1 million of Federal Reserve notes. The only effect on the credit situation is that the cash reserves of the Federal Reserve Bank are reduced 1 million dollars and its liabilities for Federal Reserve notes are also reduced 1 million dollars. Its reserve percentage, the percentage of reserves to note and deposit liabilities, is lowered slightly.

It should also be remembered that the country's paper money flows to and from the Reserve Banks so rapidly, about two and one-half times a year, that if the reserve position of the System needs strengthening, the gold can be retired from circulation again rapidly and replaced by Federal Reserve notes. By this means a rapid decline in the reserve ratio due to gold exports could be checked.

Putting gold into circulation in place of Federal

Reserve notes has not in practice "sterilized" imported gold. The only effect has been to reduce temporarily the reserve percentage of the System, to reduce a little the size of the gold show piece, and perhaps thereby reduce slightly the temptation towards secondary expansion.

3. An Open-Market and Discount Policy Adjusted to Gold Movements

Every policy decision that the Federal Reserve authorities have made in recent years has probably been influenced somewhat by gold. In two ways in particular has gold constantly obtruded itself into the credit picture. There has always been some danger that the gold stored in the Reserve System might be used for a credit inflation. This was a situation calling for high discount rates, made effective by open-market operations. But there has been also a constant threat of additional gold imports, particularly at times when money rates have been firm and our money market, therefore, attractive to international funds. Additional gold imports would not only have increased the danger of inflation here, but would also draw gold from countries already suffering from stringent credit and thus delay world business recovery and react unfavorably on the foreign trade of the United States. This situation called for low discount rates and an easy money policy that more gold might not be attracted here.

Credit policy has had to thread its difficult way between these two opposite necessities—high

enough rates to avoid inflation, and low enough rates to avoid attracting more gold—and simultaneously adapt itself to a changing domestic credit situation.

In this delicate position open-market operations in government securities have proved perhaps the most valuable instrument of policy. By purchase of securities, funds have been made more readily available to the money market at times when the process of European financial recovery might be facilitated by lower money rates and more favorable opportunities for foreign financing in this market, without at the same time fostering too rapid credit expansion in this country. The purchase of securities during 1924, which has been referred to in a previous chapter, was an example of such an operation. Such purchases of securities were designed not only for their effect on the domestic money market, but also served the purpose of acquiring for the Reserve Banks a portfolio of government securities, the sale of which at any time would have the effect of increasing the indebtedness of member banks to the Reserve Banks and thus counteract any tendency to too rapid credit expansion. Sales of securities early in 1923 and early in 1925 were of this character. Such purchases and sales of securities were effective not solely as independent instruments of Federal Reserve policy, but as means of preparing for discount rate changes or making them more effective.

An example of the more direct use of transactions in government securities to offset the influence of

gold movements took place in May, 1927. Early in May the Reserve Banks purchased abroad nearly 60 million dollars of gold. This purchase would ordinarily have the effect of putting 60 million dollars into the money market, since the gold would be paid for by credits to member-bank account in New York. The purchase of gold, however, was accompanied by a sale of government securities in equivalent amount and thus the influence of the gold purchase on the money market was directly offset. A few weeks later the Reserve Banks sold a somewhat larger amount of gold to foreign account in New York, and the effects of this sale on the money market were directly offset by purchases of securities in corresponding amount.

In these various ways open-market and discount policy has been adapted to gold movements, the action in each particular case depending upon all the circumstances of the credit situation at the time.

As to the final consequences of the policies which have been adopted, it is still too early to judge. But thus far at least no seriously excessive credit expansion appears to have taken place. The amount of Federal Reserve credit in use has decreased rather than increased since 1922 despite some increase in currency requirements, and the flow of gold to this country has considerably abated.

4. Aid to Restoration of the Gold Standard Abroad

The three means just described of dealing with gold imports are palliatives, not cures. The financial disease which brought us so much gold was de-

preciated and fluctuating currencies abroad; and the only real cure was stabilization. This disease was responsible not only for the gold flow that threatened inflation, but for other ills as well. It curtailed Europe's power to buy this country's products and made for instability of prices. It interfered with American purchases of merchandise abroad. It subjected international financial transactions to disorganization and speculation.

Each country must in large measure work out its own cure for currency disorders. It must balance its governmental budget, collect its taxes, and devise a sound banking plan for the guaranty of its currency and the stabilization of its exchange. Other countries can help only at the final step, when the plan is ready to announce to the world. At that point a large foreign credit has always proved desirable, if not essential. When the United States resumed gold payments in 1879, John Sherman, then Secretary of the Treasury, secured a gold credit of $15,000,000 in London by the sale of bonds, ready to be used if necessary to assure the stability of dollar exchange.

In the past few years the United States has had a chance to perform a similar service for a number of other countries, and in this action the Federal Reserve System has had an important part, not alone by extending credits itself, but less directly as well by at times fostering conditions under which the American investment and credit market might be more open to foreign borrowers.

Powers Under the Act.—The Federal Reserve Act,

in Section 14, gave the Federal Reserve Banks certain powers to deal with banks in foreign countries and to conduct certain banking operations abroad. With the approval of the Federal Reserve Board the Reserve Banks may buy or sell cable transfers, eligible bankers' acceptances, and bills of exchange, may deal in gold coin or bullion at home or abroad, make loans on gold, open and maintain accounts in foreign countries, appoint correspondents, and establish agencies in such countries for the purpose of buying and selling and collecting bills of exchange, and open and maintain banking accounts for foreign correspondents or agencies.

During the first ten years of the operations of the Reserve System the transactions in the exercise of these powers were in relatively small volume, partly because of disturbed monetary conditions abroad. Mutual correspondent relationships were, however, established with the principal foreign banks of issue, and the business transacted with foreign banks has gradually increased in size, particularly in the past few years. Operations have consisted largely of the maintenance of deposit accounts for foreign banks of issue and the investment of balances in bankers' acceptances and government securities. The power to make loans secured by gold has also been exercised at times.

In these transactions with foreign banks of issue negotiations and active management of the accounts are conducted by the New York Reserve Bank, since that bank is located in the country's central money market and at the point of contact with the money

markets of foreign countries. The several Reserve Banks, however, participate ratably in the System's foreign operations, and the conduct of these operations is under the general supervision of the Open-Market Investment Committee and the Federal Reserve Board.

The powers granted by the Federal Reserve Act and the correspondent relationships which had been developed placed the Federal Reserve System in a position to extend aid to foreign banks of issue in the reestablishment of the gold standard in Europe. The first important act of this sort was the extending of a credit to the Bank of England in the spring of 1925. While the inauguration of the Dawes Plan, which included the stabilization of the German currency, was perhaps the first important step in the restoration of monetary stability in Europe, the return of England to the gold standard was a second, and perhaps even more important step, for England has occupied such a strategic position in world finance that her return to the gold standard carried with it large implications for the world as a whole. As a matter of fact, Holland, Australia, and New Zealand and the Dutch East Indies withdrew their embargo on gold exports simultaneously with Great Britain's action, and South Africa and Austria and a number of other countries made somewhat similar announcements just preceding and following the British action.

Credit to Bank of England.—The specific arrangements made by the Federal Reserve Banks with the Bank of England and the conditions surrounding them were described as follows in the

annual report of the Federal Reserve Board for 1925:[1]

On April 28, 1925, the British Chancellor of the Exchequer announced that the law of 1920 prohibiting gold exports for a period of five years, except under special license, would be permitted to lapse on December 31, 1925, and that for the remainder of the year the Bank of England would be given a general license to export gold. Control of gold exports in Great Britain, which from the outbreak of the war until the legal prohibition in 1920 had been by informal methods, applied after that time to exports of all gold with the exception of newly-mined gold produced in the British Dominions and imported into England. In removing restrictions upon gold exports the British Government considered it essential to obtain the assurance of foreign credits upon which England could draw during the transition period in case its ability to maintain a free gold market was threatened by heavy withdrawals of gold. In these circumstances the Bank of England applied to the Federal reserve system for the right to draw upon the reserve banks for gold up to an amount of $200,000,000, if required, over a period of two years. At the same time the British Government arranged for an additional credit of $100,000,000 with a private group of bankers in this country. In approving the arrangement entered into with the Bank of England, the board acted on the conviction that the reestablishment of the gold standard would be an important step in the direction of the restoration of monetary stability throughout the world, and that business and credit conditions in this country would greatly benefit by this increased stability. American exporters of agricultural and other products whose business had been exposed for a decade to the hazard and expense of dealing with countries having currencies with unstable values, would, by the reestablishment of

[1] Twelfth Annual Report of the Federal Reserve Board covering operations for the year 1925, pp. 11-13.

the gold standard, be relieved of the risks arising from unstable exchanges. American credit conditions would no longer be disturbed by the continuous and uncontrollable inflow of gold which had been for more than four years the principal cause of a rapid growth in bank credit. With the principal money markets of the world once more free gold markets, and the exchanges between them stable, the flow of funds between markets would respond more freely to differences in money rates and credit conditions. Thus the resumption of gold payments by the chief trading countries of the world would furnish a basis for the functioning of those forces which before the war had operated to maintain a close contact between the money markets of the world.

Moved by these considerations, the Federal Reserve Board approved the arrangement entered into by the Federal Reserve Bank of New York, with the participation of the other reserve banks, with the Bank of England. Under this arrangement the Federal Reserve Bank of New York undertook to sell gold on credit to the Bank of England from time to time during the following two years, but not to exceed $200,000,000 outstanding at any one time. The credit was to bear interest to the extent that it was actually used at a rate of 1 per cent above the New York Reserve Bank's discount rate, with a minimum of 4 per cent and a maximum of 6 per cent, or, if the Federal reserve discount rate exceeds 6 per cent, then at the discount rate of the bank. The rate of interest to be paid by the British Government on the credit which it established with private bankers was to be determined in a similar manner. Upon the purchase of gold the Bank of England would place on its books to the credit of the Federal Reserve Bank of New York an equivalent deposit in pounds sterling. This deposit might be used from time to time by arrangement with the Bank of England in the purchase of eligible sterling commercial bills which will be guaranteed by the Bank of England, and in that case discount earned on the bills would be applied

to the payment of interest. The repayment of any interest or principal of this credit outstanding at the end of two years was guaranteed by the British Treasury. The system's arrangement, however, was strictly a banking transaction with the Bank of England and not in any sense an agreement with the British Government. Since the restoration of the gold standard in Great Britain, banking developments in that country have been such that no necessity has arisen for making use of any part of the credit with the reserve bank.

The arrangements entered into between the Bank of England and the Federal Reserve Bank of New York involved no commitment as to the policies to be pursued by either bank in dealing with domestic credit conditions or with changes in discount rates.

No use of this credit was made by the Bank of England, and it lapsed in May, 1927, but its existence undoubtedly added assurance as to the success of the project for the return to the gold standard.

Credit to National Bank of Belgium.—A further action of somewhat similar character was taken in October, 1926, when arrangements were made to assist in the stabilization of the Belgian currency. In addition to an international loan of 100 million dollars offered in the money markets of England, Holland, Sweden, Switzerland, and the United States, credit arrangements were made by the National Bank of Belgium with a number of banks of issue in other countries. These arrangements were described as follows in the *Monthly Review* of the Federal Reserve Bank of New York for November 1, 1926:

As a part of the plans which have been completed for the stabilization of the Belgian currency, the Federal

Reserve Bank of New York, in association with other Federal Reserve Banks, has indicated its readiness to cooperate with the Belgian bank of issue, the Banque Nationale de Belgique, by participating with other banks of issue in credit arrangements under which the Federal Reserve Bank of New York has agreed, if desired, to purchase up to a total amount of ten million dollars of prime commercial bills from the Banque Nationale de Belgique. In these arrangements the Federal Reserve System is acting in collaboration with the central banks of Austria, England, France, Germany, Holland, Hungary, Japan, and Sweden.

Results.—The action taken by the Federal Reserve System in extending these credits to the Bank of England and the National Bank of Belgium, greatly furthered the return to monetary stabilization abroad. If these countries had had to depend altogether on credits with private bankers, their undertaking would have lacked the assurance which arises from the aid of banks of issue, which naturally carry a financial prestige of somewhat different character from that which attaches to private banking organizations.

Since Great Britain's return to a gold standard in 1925, the flow of gold to the United States has diminished to manageable proportions. In fact there was a net loss of gold in 1925 and a gain of less than 100 millions in 1926. While the future gold movement is far from clear, it seems evident that the stabilization of most of the important countries of Europe has eliminated the principal cause of the huge flow of gold which came to this country from 1920 to 1924. The steps which the Reserve Banks have taken in facilitating this change have prob-

ably been more important in the avoidance of a gold inflation in this country than any of the temporary correctives to gold imports discussed earlier in this chapter.

Present Tendencies.—While stabilization in Europe has lessened, it has not finally removed the danger of embarrassingly large gold imports into the United States. The world produces each year some 400 million dollars' worth of gold. Of this amount 150 to 200 million dollars' worth is usually sold through world markets for monetary use. Many of the countries recently stabilized or about to stabilize would like some of this gold, but few can afford to take it. Much of it may come to this country for lack of other bidders.

Many countries, to avoid the cost of buying gold and keeping it idle, have resorted to a substitute in the form of balances abroad—"valuta" or "divisen." Such balances are treated as primary or secondary reserves, and have the advantage that they are invested in short securities or bills or on deposit at interest and earn an income. Foreign money employed in this way in New York now amounts certainly to well over 1 billion dollars. This is in part a temporary substitute for gold reserves—temporary because in the long run, in a world of frequent political disturbance, balances abroad are not as good as gold in vault. In the long run each gold-standard country is likely to seek to maintain a reserve of actual gold proportionate to the credit and currency in use. In the meantime, however, part of each year's new gold crop may go begging in

world markets and find its way to this country because others are either unable or unwilling to take it.

Not every means of avoiding gold inflation has yet been used. There are other possible methods of absorbing gold, such as retiring the greenbacks or putting more gold behind them, retiring national bank notes, reclassifying cities for reserve purposes, reducing the float the Reserve Banks carry, and requiring a larger reserve against time deposits. These and other means may be considered if the gold inflow increases again.

But there are other problems besides the new gold. In 1927 this country finds itself with a gold stock amounting to about half of the world's store of monetary gold. The total amount of monetary gold in the world is estimated at 10 billion dollars. The United States holds over 4½ billions compared with less than 2 billions before the war. With the facilities of the Reserve System for the economy of gold, this gold stock could finance an inflation of truly gigantic proportions.

Of course a huge gold stock is not in itself a bad thing, but a very good thing. With such a gold stock this country should be free for many years from the checks to prosperity which arise from insufficient credit resources. Already since 1921 we have enjoyed a period of prosperity of exceptional duration, based in part on an ample supply of credit. The prime essential is proper restraint in the use of the gold.

In addition to the evils of inflation there is further excellent reason for avoiding excessive credit

expansion on the basis of the gold store. The gold may not stay here forever.

The billion dollars and more of foreign balances in this country has a direct claim upon our gold reserves, which may some day be exercised for substantial amounts. Many countries of the world need gold and will need more gold when their trade has returned to normal volume. The world has learned to operate much more largely with paper money than before the war, but on the other hand credit and currency requirements are increased by a general price level in gold 50 to 75 per cent above pre-war. Larger bank reserves are needed and it is reasonable to believe that foreign balances will not be a permanently satisfactory substitute for gold. The future is difficult to foresee, but this is clear—this country should be so prepared for a considerable gold export movement that it would not seriously disturb credit conditions.

When gold was imported one of two things happened, a loan or investment at the Federal Reserve Bank was paid off or bank deposits were expanded several times the gold imports. When gold is exported exactly the reverse takes place. A bank must either borrow from the Federal Reserve to get the gold (or the Reserve Banks increase their investments), or bank deposits or currency must be contracted. When gold is exported it is necessary to travel back over the road taken when the gold arrived. If the gold imports had led to credit inflation the country would be facing credit deflation as a future possibility.

Fortunately, bankers and business men have used

the incoming gold mainly to pay debts rather than to contract fresh ones, and the slate is clean. The machinery of the Federal Reserve System has provided a way for storing the gold ready for the use of other nations when they have reached sufficient stability to require it. When gold exports begin the Reserve mechanism will again be useful, for member banks may secure the gold for export by borrowing at the Reserve Banks, or the Reserve Banks may assume the burden by increasing their holdings of securities. A cushion of Federal Reserve credit may thus protect the credit structure from the direct impact of exports, just as in the past few years this cushion has shielded it from the full force of gold imports.

SUMMARY

1. The way in which this country has absorbed since 1920 a huge amount of gold without any increase in commodity prices has constituted a puzzling economic paradox.
2. Before the war there was a fairly constant relationship between the country's gold stock, bank deposits, and commodity prices reflecting a world condition.
3. Since 1917 there has been no such constant relationship, and the principal explanation is to be found in the presence of a cushion of Federal Reserve credit which has broken the impact of gold on bank credit.
4. Additional reasons for the comparative stability of commodity prices, particularly since 1922.

may be found in international credit and trade conditions, and, in this country, in the absorption of additions to the credit supply in very active trade, large domestic and foreign new financing, advanced wages, and higher real estate and security prices.

5. Federal Reserve gold policy has found expression in four principal ways:
   A. Resistance to secondary expansion.
   B. Putting gold into circulation.
   C. An open-market and discount policy adjusted to gold movements.
   D. Aid to restoration of the gold standard abroad.
6. Gold imports lead directly and inevitably to increases in the volume of credit unless they are offset by decreases in Federal Reserve credit. Such direct increases may be termed *primary expansion.* Any later use of the gold as a basis for increases in Federal Reserve credit may be termed *secondary expansion* and is more closely under the control of the Reserve Banks. There has been no secondary expansion on the basis of gold imported since 1920.
7. Putting part of the imported gold into circulation in the form of gold certificates has not sterilized the gold. It has simply reduced the gold show piece of the Reserve System, and the reserve percentage.
8. Open-market and discount policy has had to thread its way between two opposite necessities—high enough rates to avoid inflation, and low enough rates to avoid attracting more gold

—and simultaneously adapt itself to a changing domestic situation.

9. The only real cure for the conditions which brought the flood of gold to this country was world monetary stabilization. The Reserve System has had a share in aiding the return of the countries of the world to the gold standard not alone by extending credit itself, but less directly also by at times fostering conditions under which the American investment and credit market might be more open to foreign borrowers.
10. In the future this country must face the possibility of either a further continued influx of gold or a loss of gold. The credit situation must be so maintained and Federal Reserve policy must be so designed as to be ready for either contingency.

CHAPTER XV

Interest Rates—A Measure of Results

PRECEDING chapters have traced in some detail the banking changes resulting from the Federal Reserve System—changes in bank reserves, currency, check collections, government finance, credit policy, gold movements, the money market, etc. At various specific points it has appeared that the operations of the Reserve System result in a sounder economic organization and practice. Turning, however, from the consideration of specific phases of Federal Reserve operations, the question may well be asked whether there is any way of measuring the broad results. Can we measure the social consequences of the Federal Reserve System?

It will be easier to answer this question twenty-five years from now, when information is available as to what happens for a term of years under the Reserve System to prices, the cost of living, wages, business success and failure, and the nation's accumulation of wealth. Experience is now so limited and relationships in these fields are so complex, that sweeping conclusions cannot be drawn.

There is, however, one somewhat more restricted field in which data are available to measure in limited degree the results of Federal Reserve operations, and that is the field of interest rates. To the extent that the Reserve System exercises an influence upon

social welfare in this country it does so by insuring a supply of credit adapted to the needs of the people. And interest rates are perhaps the best available measure of the adaptation of the credit supply to the country's needs.

Interest rates are interesting primarily not as the price we pay for money, but as indicators of credit conditions. When William Jones, hardware merchant, is considering an increase in his stock of hardware, his decision does not rest largely on whether his bank will charge him 5 or 6 per cent on his loan. The real question is whether he can get the money and whether his banker will give him assurance of future accommodation.

When interest rates are high or rising, it is less easy for Jones to get a loan or the assurance of future loans, because the banker is "loaned up" and is having difficulty in maintaining his reserves. When interest rates are low, it means that funds are readily available, and the banker is anxious to make loans.

For the banker interest rates themselves are important, but much less important than the underlying credit conditions which determine the banker's ability to maintain the volume of deposits, to keep funds steadily employed, and to avoid losses. Changes in interest rates are the outward evidence of changes in underlying credit conditions which are of great social importance.

A history of interest rates in this country reveals the financial crises of the country. This may be illustrated by Diagram 42, which shows the interest rates on commercial paper in the open market each

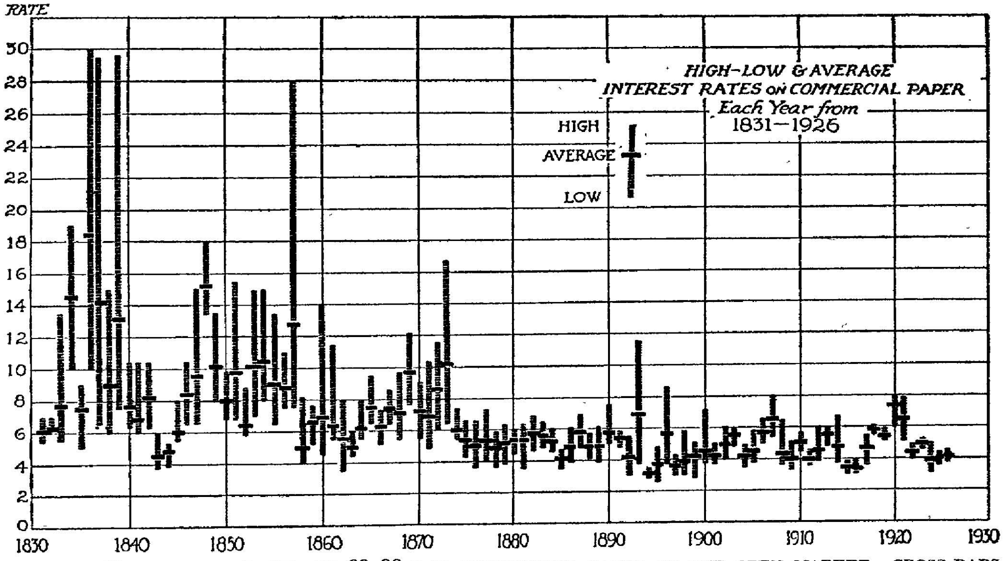


DIAGRAM 42—INTEREST RATES ON 60–90 DAY COMMERCIAL PAPER IN THE OPEN MARKET. CROSS-BARS SHOW AVERAGE RATES EACH YEAR; TOPS OF LINES SHOW HIGHEST, AND BOTTOMS OF LINES LOWEST RATES. (Figures for early years in this and diagram 43 are taken from an unpublished study by Dr. F. R. Macaulay, of the National Bureau of Economic Research.)

year since 1831. The cross-bar shows the average for each year, while a line extends from this bar upward to the highest point of the year and another line downward to the lowest point of the year. High interest rates mark the business disturbances of 1836, 1848, 1857, 1873, 1893, 1896, 1907, and 1920.

When in the future the historian looks back on the history of interest rates in this country, it seems not improbable that he will recognize two outstanding events which have led to greater stability of interest rates. The first one was the establishment of the National Banking System, the full effects of which were not clearly observable (as Diagram 42 shows) until some years after the close of the Civil War; and the second, the establishment of the Federal Reserve System, the effects of which are only now gradually becoming evident.

The stress of the Civil War resulted in the establishment of the National Banking System and the placing of the nation's currency on a sounder basis. After the strain of the war had passed and after specie resumption in 1879, the sounder organization of our credit system was reflected in lower and more stable interest rates. Even the severe financial disturbances of the '90s failed to produce such fluctuations of rates as occurred in the '30s, or the '50s.

But there were still defects in the structure of the country's credit system. Every year there was a characteristic seasonal credit strain, with a corresponding movement of interest rates. In times of emergency there were erratic and violent movements of money rates reflecting recurrent credit strain. The movement of rates for call money in 1907 is

described as follows in a report by the Senate Banking and Currency Committee in November, 1913:

> . . . during the year 1907 the range of interest for money was from 2 to 45 per cent in January, from 3 to 25 per cent in March, from 5 to 125 per cent in October, from 3 to 75 per cent in November, and from 2 to 25 per cent in December, with currency bringing a premium from 1 to 4 per cent during November and December. The blighting effect of these violent fluctuations of the interest rates is demonstrated by the rate charged for 90-day time loans, which during November and December, 1907, were running as high as 12 to 16 per cent, with no business done in time loans of a longer period during the entire month of November and no business being done at times on prime commercial bills during the same months.[1]

One of the purposes which the Congress had in mind in the establishment of the Federal Reserve System was the eradication of some of these violent movements of interest rates.

Like the National Banking System, the Federal Reserve System was inaugurated at a period of financial strain. It was plunged into the midst of war finance before it had proved itself by any period of ordinary operations. It is rather fruitless to speculate on what would have happened to interest rates during the war if there had been no Federal Reserve System. Some other means would of necessity have been found in the emergency for dealing with war needs for additional credit. It is reasonably sure that these emergency means would not have been as effective as the Reserve System which provided

[1] Report of the Senate Banking and Currency Committee, November 1913, p. 22.

an organization ready for the emergency; but as far as the facts in the case go, they indicate simply that, while interest rates rose to high figures shortly following the war—and there was considerable credit strain—there was nothing like the same credit disturbance as had occurred in this country at the time of the Civil War, and as occurred during and after the World War in most other countries of the world.

But there are now, in addition to the war experience, over five years of operation of the Federal Reserve System, under conditions which, despite very heavy gold imports, and disturbed financial and industrial conditions abroad have more nearly approached normal. From the records of these years, in addition to the war experience, it is possible to learn something of the effects of Reserve Bank operations on interest rates.

Are Rates Higher or Lower?—In the long run interest rates are determined by the supply of and demand for capital. The Federal Reserve System has no power to increase or diminish the country's gradual accumulation of capital. Its influence is felt primarily in the short-term credit markets. To the extent that the existence of the System makes the supply of credit less uncertain and so lessens the risk in business and investment, and to the extent that the System provides for economy in the use of bank reserves, there is some tendency towards lower rates. The increase in the country's wealth from year to year furthers the same tendency. But the existence of the System has much less influence on the long-time average level of rates than on shorter tenden-

cies of rates and the relationship between different rates.

The following table makes a comparison, before and after the inauguration of the Reserve System, of those rates commonly quoted in the New York market:

TABLE 15.—AVERAGE OPEN-MARKET RATES—NEW YORK

Period	Commercial paper		Stock Exchange loans	
	60 to 90-day	4 to 6 months	On call	60 to 90-day
1900 to 1913..	4¾	5½	3¾	4¼
1915 to 1926..	5	5¼	4½	5
1922 to 1926..	4¼	4½	4¼	4½

If we take a general view of these figures, we conclude that there has been no very large change in the average level of open-market rates since the Reserve System was inaugurated.

A more careful inspection of the figures shows that the changes have been quite different in different kinds of loans: commercial paper rates have tended to be lower, and loans on stock exchange collateral higher. The tendency thus far has been for business money to be cheaper and for stock exchange money to be dearer.

Reduced Spread Between Maturities.—A further interesting fact which the table given above dis-

closes is that since 1914 the spread between rates for longer and shorter maturities of commercial paper has been almost eliminated.

Diagram 43 shows for the past thirty-seven years the rates in the New York open market for four to six months' commercial paper, compared with the rates on 60 to 90-day paper. In the years before the Reserve System was established there was a considerable spread between the two rates, so that it cost the borrower from ½ to 1 or even 2 per cent more to borrow for four to six months than it cost for the shorter period.

Since the Reserve System has been in operation, however, the spread between shorter and longer maturities has been steadily reduced, and early in 1924 rates on 60 to 90-day paper were no longer quoted separately. While at times there is a spread between the maturities, they are frequently sold at the same rates.

There are a number of explanations for these changes. A first consideration is that the Federal Reserve System has provided credit elasticity which makes it much easier for banks to adjust their reserve positions. In the old days very careful dating of loans and investments was necessary that a bank might be prepared to meet its specified obligations, such as tax or dividend payments, or unexpected calls on its resources, without impairing its reserve. There were no ready means, always assured, by which a bank could secure temporary aid to tide it over difficult periods unless a bank had sufficient maturities or call loans available on every business day of the year to meet possible impairments of re-

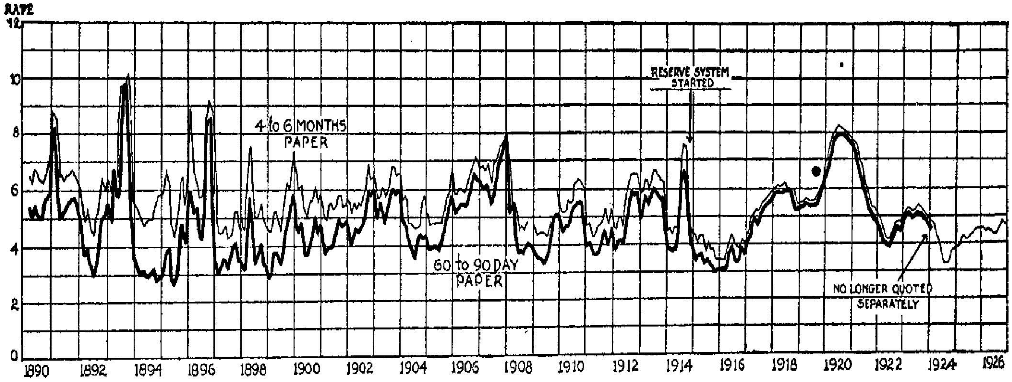


DIAGRAM 43—SINCE THE ESTABLISHMENT OF THE FEDERAL RESERVE SYSTEM THE SPREAD BETWEEN RATES FOR DIFFERENT MATURITIES OF OPEN-MARKET COMMERCIAL PAPER HAS BEEN MUCH REDUCED AND RATES FLUCTUATE LESS.

serve. The short-term obligation was, therefore, a very desirable employment for funds, because it kept funds coming back, ready for the expected or unexpected demand.

The Federal Reserve System has greatly simplified the problem of adjusting reserves. The member bank can now tide itself over an emergency by borrowing from its Reserve Bank. The non-member bank can secure accommodation from its city correspondent more readily, because the city correspondent can borrow from the Reserve Bank.

Besides direct borrowing from a Reserve Bank, there are now additional facilities for the adjustment of bank reserves in the existence of two new and important markets for the employment of funds for short periods, the bill market and the market for short-term government securities.

The existence of these two markets, in addition to call loans, as avenues for reserve adjustments, together with the possibility of direct borrowing from the Reserve Banks, gives banks greater freedom as to the maturities of their loans and removes much of the difference in desirability between different maturities.

A still further explanation for the narrowing spread between rates for different maturities has been set forth by Colonel Leonard P. Ayres, vice-president of the Cleveland Trust Company:

The dominant reason for this difference (reduced spread between maturities) appears to have been that in those days it was far more hazardous to loan money for as much as six months than it was to loan it for only two or three months. In the years when recurrent panics

and crises were among the expected events of our financial operations no one could know what even the next six months might bring forth, and lenders had to be paid for taking the risks of making the longer loans. . . . Under the Federal Reserve System many of the uncertainties and sudden changes in money conditions have been removed and hence there is little difference between the rates charged for short and long periods.[1]

Reduced Spread Between Cities of West and East.—When the Federal Reserve Act was being discussed in Congress, the hope was expressed that the proposed legislation might result in lessening the disparity between interest rates in different parts of the country. It has been disturbing that the Minnesota farmer should pay 6 to 8 per cent for his money, while money sometimes went begging at 2 per cent in the call-loan market in New York.

This difference in rates is the result of a number of factors, several of which probably will always be operative, no matter what kind of banking system exists. The rural bank explains high rates on the ground that it costs more to make the loan to the farmer because of the high cost of maintaining a local bank, handling many small accounts, determining the farmer's credit, following up the loan, and taking the risk of crop failure. And the money lent to the farmer is tied up for an indefinite number of months, whereas the call loan can be liquidated at any time. All of these are differences in the character of the two loans which the Federal Reserve System cannot alter.

[1] Pascagoula National Bank *vs.* Federal Reserve Bank of Atlanta; In the District Court of the United States for the Northern District of Georgia; Answer of Federal Reserve Bank of Atlanta and Supporting Affidavits, p. 68.

But there are other factors in the difference in interest rates between different parts of the country, and these factors have to do with the fluidity of the country's credit. In the old days there were a number of barriers to the free flow of funds throughout the country. Settlements between different parts of the country required eventually the expensive shipment of currency. Under the old check-collection system with its exchange charges, its indirect routing, and complex special arrangements, it took twice as long to make settlements as it does at present. There was usually a premium or discount on New York funds in Chicago or other Western centers; the purchase of New York or other out-of-town funds was like the purchase of foreign exchange.

These barriers hindered surplus funds in one part of the country from finding employment in some other part. There was limited automatic correction for high rates by the flow of funds from the center where they were in ample supply to the center where they were dear.

Barriers Broken Down.—The Federal Reserve System has broken down many of the barriers which hindered a free movement of funds. Check collections have been made faster, safer, and cheaper. Transfers of collected funds are made by telegraph without cost to member banks. Settlements no longer require the shipment of currency, but are made by bookkeeping entries on the reserve accounts of the Federal Reserve Banks. Banks are now much less dependent on the New York money market, since adjustment of reserves can

be effected at their local Federal Reserve Bank. At the same time access to the New York money market has become easier, and the money markets of Chicago, Boston, and other centers have grown in importance. All of these changes in the mechanism of banking intercommunication may be expected to reduce the spread between interest rates in different parts of the country.

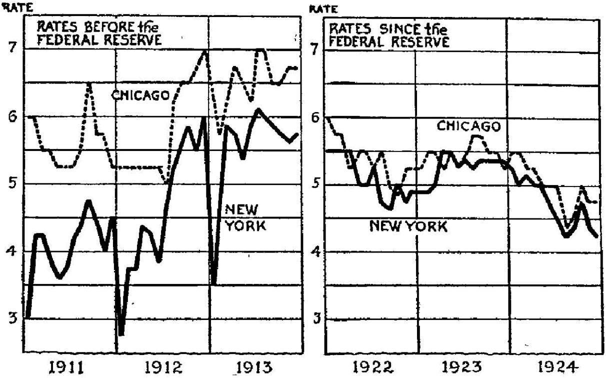


DIAGRAM 44—IN RECENT YEARS THE DIFFERENCE BETWEEN THE INTEREST RATES CHICAGO BANKS CHARGE THEIR CUSTOMERS AND THE RATES NEW YORK BANKS CHARGE HAS BEEN REDUCED.

It is not possible to secure complete data to test statistically the soundness of this logic, but some few are available. Some years ago Bradstreet's began collecting from typical banks in certain centers the rates which they charged their customers on prime commercial loans. *The Annalist* began a similar report in 1911. The Federal Reserve Banks have been collecting such figures in recent years. The New York and Chicago rates, as reported by

these agencies, for three years just before the System was established, are compared in Diagram 44 with the figures for 1922, 1923, and 1924. The diagram indicates that before 1914 rates were at times twice as high in Chicago as in New York, and the difference was usually considerable. Now the spread between rates is almost negligible. While these figures are subject to some error, partly because the data for the earlier period cannot very well be checked, and partly because it is always difficult to secure accurate quotations for the rate on loans made in each case by private negotiation, the figures may be relied upon as illustrating the kind of change that has taken place.

Table 16, prepared from the same sources, indicates that, for other centers as well, the gap between rates in the central money market and in other parts of the country has been narrowed. More nearly than ever before, the country's supply of

TABLE 16.—AVERAGE INTEREST RATES ON CUSTOMERS' PRIME COMMERCIAL PAPER, 4–6 MONTHS

	1911–1913	1922–1924
New York	4.74	5.03
Boston	4.86	4.99
Philadelphia	4.97	5.22
St. Louis	5.87	5.27
Chicago	5.98	5.28
Minneapolis	6.15	5.49
New Orleans	7.11	6.10
Kansas City	8.00	5.96

credit has become a single pool accessible to all parts of the country, and differences in rates now represent not so much the influence of artificial barriers as genuine differences in risk and cost of administration.

Of course, the problem of the Minnesota farmer is far from solved. He pays rates higher than the call rate in New York or the bank customer's rate in Chicago or St. Louis. He will continue to pay high rates until a method has been discovered to administer banking service for the farmer more economically than now and to take out of the farm loan some of the present uncertainty and delay in repayment. But the existence of the Federal Reserve System, together with the accompanying development of the country's money markets, has brought the farmer one long step nearer to the central money market, and rates in many Western centers are now more nearly on a par with rates in New York. The banks in these centers are thus placed in a position to serve agriculture more effectively and reasonably, by financing the movement of farm products, by buying agricultural acceptances, and by serving correspondent banks in rural districts.

Seasonal Changes.—Another fact of major importance revealed by Diagrams 43 and 44 is that money rates fluctuated from month to month much more rapidly and widely before the Federal Reserve System was established than they do at present. The reader will have noted that these fluctuations were partly due to a more or less regular seasonal swing of interest rates. In January and February money

tended to be easy. In the early spring rates rose, as the demand for funds increased with the planting of crops and spring trade. Towards summer rates fell, but rose again to the year's high point in the autumn with harvesting and autumn trade. They continued generally high throughout the holiday period with its heavy currency requirements. Changes in rates thus reflected directly changes in business and agricultural activity; for in the old days there was no way by which the supply of funds could be increased or diminished to correspond with changes in the demand.

Since the establishment of the Federal Reserve System, such seasonal swings of interest rates have been much reduced.

Diagram 45 is an attempt to summarize more clearly the change which has taken place in the seasonal swings of interest rates. The top section shows the seasonal movement of the volume of trade. Retail and wholesale trade do the heaviest part of their business in the autumn. The building industry is most active in the spring. Agriculture calls for largest amounts of currency and credit for the spring planting and the autumn harvesting of crops. The line in the diagram, which is a composite of many kinds of business, reflects this concentration of activity in spring and autumn.[1]

The middle section of the diagram shows the

[1] The line shown is a combined index of the seasonals of the fifty-six series of figures included in the index of the volume of trade of the Federal Reserve Bank of New York described by Carl Snyder in the quarterly journal of the American Statistical Association, December, 1923. The weights used in this seasonal index are the same as those used in the volume-of-trade index.

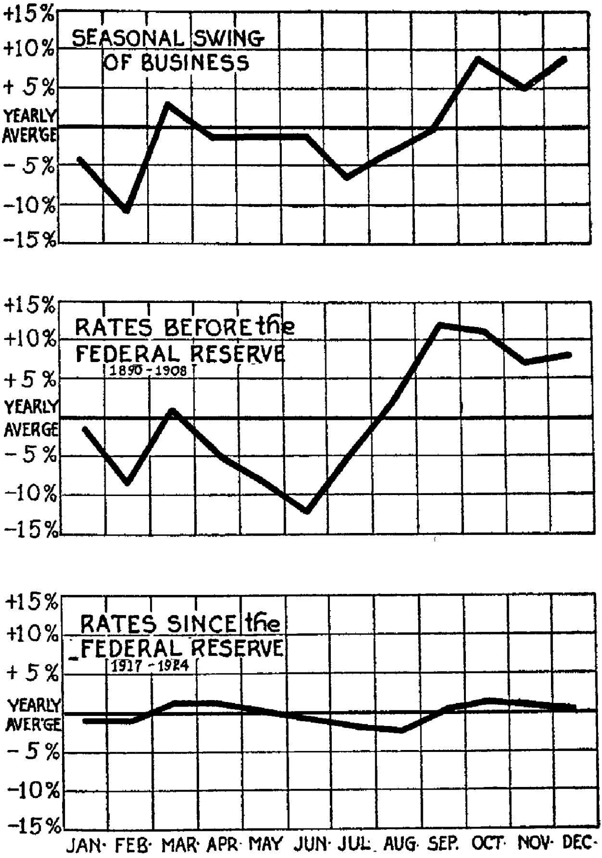


DIAGRAM 45—BEFORE THE RESERVE SYSTEM WAS ESTABLISHED, THE USUAL SEASONAL SWING OF BUSINESS RESULTED IN A SEASONAL SWING IN INTEREST RATES BECAUSE THE COUNTRY'S CREDIT SYSTEM WAS INELASTIC. NOW THE SEASONAL CHANGES IN BUSINESS HAVE LITTLE EFFECT ON INTEREST RATES, BECAUSE CREDIT IS ELASTIC.

typical monthly fluctuations of interest rates from 1890 to 1908, and reflects the strain on the banks which resulted from the seasonal swings of business. The lowest section shows the typical monthly fluctuations of rates from 1917 to 1924. Rates no longer reflect credit strain in the spring and autumn, but are relatively steady throughout the year.

The explanation of the striking change which has taken place in the monthly fluctuations of rates is found in the credit elasticity provided by the Reserve System. When money tends to be in small demand, the member banks utilize any surplus funds to pay off the indebtedness at the Reserve Banks incurred during the period of demand. Surplus funds are not thrown on the market as they used to be, except at periods when banks may be out of debt at the Reserve Banks; thus there is now less tendency for rates to be unduly reduced in times of small demand. Similarly, when the demand for funds is large in the spring and in the fall, the member banks may secure necessary additional funds from the Reserve Banks, either by borrowing or by the sale of acceptances, so that they are in a position to meet the demands upon them without any considerable tightening in credit.

The significance of all this is that in the old days business men were subjected to a constantly fluctuating price for funds. This, perhaps, was no disadvantage for those businesses whose borrowing was so flexible that it could be done at any time of year. But it was hard on the man who had to borrow in the fall or the spring, and it was particularly hard on agriculture, because money was tight just

at the time when seed had to be planted and when crops had to be harvested.

For bankers the chief disadvantage in the old fluctuations in interest rates, and the credit changes they signified, was that the banker constantly faced either a plethora or a dearth of available funds, with a consequent continuous problem in keeping his reserve position adjusted. As both plethora and dearth can now usually be avoided through the Federal Reserve System in the manner above indicated, the banker can maintain his position with a narrower margin of working reserve, thus employing his funds more fully at steadier rates. He can compute more readily the rate of interest he can afford to pay on deposits and adjust expenses to income more precisely.

While the old seasonal fluctuations of interest rates were important in themselves, because of the way they penalized certain forms of business and because of the difficulty in which they placed the banker in the employment of his funds, the fluctuations had their most serious consequences in periods of crisis when the seasonal credit strain was added to a credit strain from other causes. It was not by accident that most of the money panics in this country occurred in the fall of the year; it was in the fall that the usual seasonal strain, added to an unusual credit and currency stringency, became the last straw that broke the camel's back.

Rates in the Business Cycle.—Aside from the seasonal movement described above, there is another movement of business which has come to be known as the business cycle. The cycle has attracted much

attention to itself because it was at one particular stage of the business cycle that the business panic or crisis frequently made its appearance.

When business reached a point of maximum operations, large additional amounts of credit were called into being, and large amounts of currency were needed for circulation. On these occasions banks were put to it to maintain their reserves, and at times the credit structure cracked under the strain. Banks reached a point where they could lend no further without impairing their reserves. Money rates rose to high figures. The business man who had expanded his business to the utmost suddenly found himself shut off from additional credit, and business and bank failures were the order of the day. It was a situation of this sort in 1907 that the Senate Committee was describing in the report quoted in the early part of this chapter.

Since the establishment of the Federal Reserve System there have been no money panics and no such sudden violent movements of interest rates as characterized former periods. The elasticity of credit and currency which the Reserve System provides makes it unlikely that the country will ever again experience a financial panic of this sort.

There were, of course, in the old days business cycles which did not result in financial panics, in which the period of prosperity came to a culmination without serious financial distress. Experience is too limited as yet to indicate precisely what the movement of rates will be in the course of a normal business cycle under the Federal Reserve System. The only complete cycle in reasonably normal years

has been in the years from 1922 to 1924, during which rates were remarkably steady, despite tremendous gold movements and considerable fluctuations in business activity. Some years from now it will be possible to judge whether this was a normal or exceptional rate movement under the Federal Reserve System. There is good reason to hope that the swing of the business cycle will be reduced in extent.

SUMMARY

1. From the foregoing evidence it appears that since the establishment of the Federal Reserve System the following important changes in interest rates have taken place:
   - A. The spread between long and short maturities has been reduced.
   - B. The spread between the cities of West and East has been reduced.
   - C. Seasonal fluctuations of rates have been reduced.
   - D. Panic rates have disappeared.

   In all of these ways the result has been to give rates greater stability, to diminish change and uncertainty.
2. The business man with good credit can be sure of funds for conducting his necessary operations, and he does not have to pay abnormally high rates simply because he has to borrow at a particular time, or for a longer rather than a shorter period. or because he lives in a Western rather than an Eastern center.

3. The banker can be sure of more continuous employment for his funds than in the past at steadier rates throughout the year. With greater assurance as to the future, he can adjust his interest payments and other costs to his income. He can provide the business of the country with more assured banking accommodations at steadier rates.

CHAPTER XVI

Meaning of the Weekly Statement of Condition

This chapter has been added in an attempt to answer some frequently asked questions. The weekly statement is the means by which the Reserve System reports its operations regularly to the public. While there is a growing appreciation of the significance of the statement, there is as yet no general understanding of its meaning.

THE Federal Reserve System publishes each week one of the most complete statements of its operations of any bank of issue in the world. The statement includes thirty-seven items and is published in combined form for the Reserve System, and separately as well for each of the twelve Federal Reserve Banks. This statement appears in the daily papers every Friday morning, giving the condition as of the close of business on Wednesday night. A copy of the one published September 2, 1927, is shown on pages 298 and 299.

Changes in the statement of the Federal Reserve Banks reflect directly two-thirds of the banking operations of the United States, for Federal Reserve membership includes more than two-thirds of the country's commercial banking resources, and they reflect indirectly the operations of the non-member banks as well. These Federal Reserve reports provide a kind of epitome of the nation's banking conditions. Since the condition of the banks in turn reflects certain phases of the nation's business, these

TABLE 17.—RESOURCES AND LIABILITIES OF THE TWELVE FEDERAL RESERVE BANKS COMBINED

(In thousands of dollars)

RESOURCES	Aug. 31, 1927	Aug. 24, 1927	Sept. 1, 1926
Gold with Federal reserve agents	1,640,260	1,615,271	1,395,311
Gold redemption fund with U. S. Treasury	36,670	40,689	53,622
Gold held exclusively against F. R. notes	1,676,930	1,655,960	1,448,933
Gold settlement fund with F. R. Board	631,491	643,573	732,717
Gold and gold certificates held by banks	689,502	710,308	646,661
Total gold reserves	2,997,923	3,009,841	2,828,311
Reserves other than gold	147,813	147,663	138,032
Total reserves	3,145,736	3,157,504	2,966,343
Non-reserve cash	48,050	53,039	49,328
Bills discounted:			
Sec. by U. S. Government obligations	217,817	217,677	320,675
Other bills discounted	182,707	196,480	305,673
Total bills discounted	400,524	414,157	626,348
Bills bought in open market	185,128	178,809	253,481
U. S. Government securities:			
Bonds	212,077	203,557	45,605
Treasury notes	99,642	89,333	217,702
Certificates of indebtedness	161,095	151,931	55,657
Total U. S. Government securities	472,814	444,821	318,964
Other securitie	320	320	3,700
Total bills and securities	1,058,786	1,038,107	1,202,493
Due from foreign banks	12,248	23,629	744
Uncollected items	603,366	609,876	620,052
Bank premises	59,455	59,452	59,931
All other resources	17,747	17,032	16,696
TOTAL RESOURCES	4,945,388	4,958,639	4,915,587

TABLE 17.—*Continued*

LIABILITIES	Aug. 31, 1927	Aug. 24, 1927	Sept. 1, 1926
F. R. notes in actual circulation	1,676,440	1,670,831	1,702,902
Deposits:			
Member bank — reserve account	2,298,880	2,305,727	2,223,902
Government	12,699	19,247	24,326
Foreign bank	5,536	4,935	15,166
Other deposits	24,168	23,973	18,926
Total deposits	2,341,283	2,353,882	2,282,320
Deferred availability items	555,002	561,147	568,299
Capital paid in	130,727	130,730	123,490
Surplus	228,775	228,775	220,310
All other liabilities	13,161	13,274	18,266
TOTAL LIABILITIES	4,945,388	4,958,639	4,915,587
Ratio of total reserves to deposit and F. R. note liabilities combined	78.3%	78.5%	74.4%
Contingent liability on bills purchased for foreign correspondents	165,746	162,087	44,875

weekly statements of the Federal Reserve Banks should give the acute observer an index of business conditions. The statements are available more promptly than any other index of such wide scope and afford an understanding of conditions which are current and not several weeks past.

But the statement with its thirty-seven items is a rather complicated affair and its full significance is understood by relatively few people. One has to be something of an expert to understand the meaning of the changes from week to week in all of the items.

For the less expert there are available in the *Federal Reserve Bulletin* and in the *Monthly Reviews* published by the several Federal Reserve Banks, interpretations of the more significant features of the statement. But even without these aids the statement should yield some meaning to even the casual reader. The problem is one of selection, of knowing just what items of the thirty-seven are most significant. Fortunately, such selection is possible. Generally, the statements of the individual Reserve Banks may be ignored and attention given solely to the consolidated statement for all twelve Banks. Moreover, the reader whose interest is general and not technical may well ignore many of the items and concentrate upon a few which reflect most directly changes in the country's business. Of these few the most important is "Total bills and securities."

Total Bills and Securities.—The nomenclature of this item was changed in 1925 from "Total earning assets" to "Total bills and securities." It represents the total amount of credit the Reserve Banks are extending in the form of either loans or investments. Its significance lies in its revealing currently the adjustment between the country's supply of and demand for funds. When demand for funds increases relative to supply, total bills and securities go up; when demand declines relative to supply, total bills and securities go down. They respond even more promptly and accurately to changing conditions than do interest rates.

The item "Total bills and securities" is our best present substitute for the old statement of reserves of the New York Clearing House. The clearing

house statement, issued each Saturday, showed the amount of reserves the clearing house banks were required to keep to satisfy the percentages prescribed by law and showed actual reserves in relation to these requirements. The most significant figure was that for "excess reserves" beyond requirements, or in rare instances the deficit below requirements.

Excess reserves represented the banks' unused lending power, the margin of possible expansion and of safety. They were the point where the relation between supply and demand could be measured. When the demand for funds increased relative to the supply, excess reserves declined. When demand decreased relative to supply, excess reserves rose. Since in those days New York was, even more than at present, the storage place for the country's reserve funds, the reserve position of the New York banks was an index of the national money situation.

In the old days prudent bankers, and business men as well, followed closely the statement for excess reserves of the New York banks. A decrease in excess reserves was one of the surest signs of a storm ahead. In the summer of 1907, for example, a decrease in excess reserves from $8,700,000 in August to an actual deficit preceded the panic which broke in October. The very close relationship between the reserve position of the New York banks and interest rates was shown in Diagram 17 on page 116.

Since the Federal Reserve System has been in operation the figure for excess reserves of the New York City banks, though it is still published by the

New York Clearing House, has lost its old significance. The reason is that the banks no longer carry any excess reserves, but simply the legally required minimum, relying upon the Reserve Banks to help them out in any emergency. Thus for week after week, in good times or bad, when interest rates are high or low, the excess average reserves of the clearing house banks appear in the Saturday statement at a figure just above the legally prescribed amounts. The statement has quite lost its old significance.

A word should be said about the clearing house statement of actual reserves, as distinguished from average reserves, for the meaning of this feature of the statement, under present conditions, is frequently misunderstood. The figure for actual reserves gives the position on Friday night. In the old days it was interesting to compare the Friday-night position with the average for the week, to see whether the reserve position was getting better or worse during the week.

In the statement as published today the average, as indicated above, shows little change from week to week, but the actual figure for Friday night frequently fluctuates widely and shows excesses of as much as 75 million dollars and at times shows deficiencies. A study of these changes in actual reserves shows that they bear no consistent relation to money conditions. Money is frequently tight when there are excess reserves on Friday and easy when there is a deficiency of actual reserves. The explanation is simple. This excess or deficiency is the result of changes in the amount the banks are borrowing from the Reserve Bank. Sometimes re-

serves are allowed to run below requirements early in the week. Then, to bring average reserves up to requirements for the week, which ends on Friday for purposes of computing reserves, the banks borrow heavily at the Reserve Bank on Thursday and Friday, and the report for Friday night shows a large excess reserve, due solely to heavy borrowing at the Reserve Bank. Conversely, a deficit in actual reserves on Friday night may result from excess reserves early in the week, as a consequence of which the banks repay some of their borrowing at the Reserve Bank, and still finish the week with average reserves equal to or above legal requirements. Thus the position of actual reserves reflects largely changes in borrowing at the Reserve Bank and has none of its old significance.

As the usefulness of the New York Clearing House statement has diminished as an index of the money situation, a substitute has appeared in the Federal Reserve statement. The figure for total bills and securities of the Reserve Banks is an index which corresponds somewhat to the old figure for excess reserves. The country's reserve funds are stored in the Reserve Banks and the figure for total bills and securities shows how much of these funds is being put to work by the extension of credit based upon them. Just as the wise banker or business man used to proceed a little more cautiously when excess bank reserves dwindled, and more freely when excess reserves were large, so today he may well act with more caution when total bills and securities of the Reserve Banks are high and rising and move more freely when they are low.

A Reflection of Business Activity.—Total bills and securities, since they represent the total amount of credit the Reserve Banks are extending to the member banks or the money market, respond quickly to changes in business. For when business expands it needs more currency and credit, and when it contracts it needs less. They also reflect changes in the supply of credit from such causes as gold imports or exports—ordinarily not a large factor, but important in recent years. Business changes usually dominate.

It is the additional demand for currency which always accompanies increasing business that ordinarily makes necessary increased use of Federal Reserve credit. This was illustrated in Diagram 10, on page 49.

Because they reflect changes in currency and credit demands these total bills and securities have a characteristic seasonal movement as is shown by Diagram 46. Each succeeding year duplicates to a considerable extent the movement of preceding years. When business is dull in January and currency returns from holiday circulation, the banks repay some of what they have borrowed from the Federal Reserve Banks; when spring comes they call upon the Reserve Banks more largely for credit; in midsummer, when trade is quiet, the bills and securities of the Reserve System are reduced; then, in the autumn, trade expansion is followed by an increased call on the Reserve Banks culminating in a large expansion to meet currency needs at Christmas time. In order that the reader of the Federal Reserve statement may make allow-

ance for seasonal tendencies, the statement gives each week not only the figures for the preceding week, but also the figures for the corresponding week a year ago.

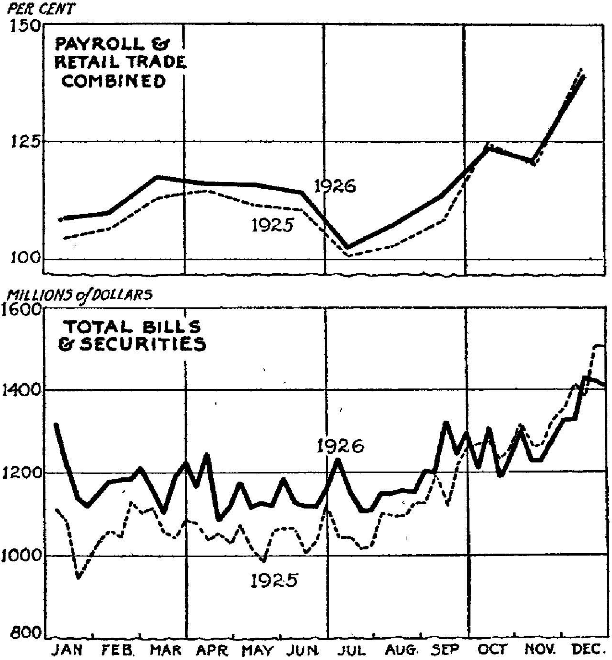


DIAGRAM 46—TOTAL BILLS AND SECURITIES REFLECT PROMPTLY SEASONAL VARIATIONS IN BUSINESS, AND CHANGES IN BUSINESS CONDITIONS AS WELL.

Diagram 46 illustrates not only the seasonal variations, but also the promptness with which total bills and securities reflect changes in business. All

during the greater part of 1926 they ran ahead of 1925, and then in October they dipped down and began to run behind 1925. It was one of the earliest evidences of a temporary slowing down in business, which was revealed clearly as the production figures appeared later.

Important Subdivisions.—The total of bills and securities is made up of three principal items:

1. Total bills discounted.
2. Bills bought in the open market.
3. Total U. S. Government securities.

"Total bills discounted" represents the amount which member banks are borrowing directly at the Federal Reserve Banks. It is the amount of Federal Reserve credit in use for which the member banks feel direct responsibility. The importance of this item was discussed in Chapter VII, where it was pointed out that the money market is very sensitive to changes in it. For when the member banks are heavily in debt at the Reserve Banks they are constantly striving to get out of debt; they are calling loans, selling investments, and are a bit cautious in their lending. Conversely, when the member banks owe little to the Reserve Banks they lend more freely and money tends to be easier. There is, therefore, a close correlation between money rates and total borrowings of member banks at the Federal Reserve Banks, represented in the statement by "Total bills discounted." Thus, "Total bills discounted," is a good index of the condition of the money market. Increases in this item are prophetic

of rising interest rates, and decreases are prophetic of falling interest rates.

"Bills bought in the open market" reflects two things: conditions in the bill market and, more generally, conditions in the money market. The particular conditions which give rise to larger holdings of bankers' acceptances by the Reserve Banks have been described in Chapter VIII. It should perhaps be reiterated that these holdings of bills do not ordinarily express the direct operation of Federal Reserve policy. The initiative in the purchase of bankers' acceptances by a Reserve Bank is taken not by the Reserve Bank itself, but by member banks and dealers. The holdings thus respond directly to conditions in the market.

"Total U. S. Government securities" held by the Reserve Banks reflects largely Federal Reserve open-market policy, as it was described in Chapter XII. Increases in holdings of government securities ordinarily reflect an effort on the part of the Reserve Banks to bring about somewhat easier money conditions, and conversely, decreases in these holdings indicate an attempt to bring about firmer money conditions. There are three important exceptions to this interpretation of the figures. The first exception arises from the occasional purchase by the Reserve Banks of securities under sales contract. As was described in Chapter VI, purchases of this sort are made in order to provide the market for government securities with funds when money tightens temporarily. Such purchases are initiated by the dealers in government securities and are thus in a sense involuntary, as far as the Reserve Banks are

concerned, and are similar in character to the purchases of acceptances from dealers. The second exception takes place at the quarterly tax dates. At those times the Treasury usually has to pay out large sums of money to redeem maturing issues before it has received the returns from income taxes. To bridge the gap the Treasury borrows from the Reserve Banks by selling to them temporary one-day certificates of indebtedness, and these appear in the weekly statement in the holdings of government securities. Increases in such holdings, due to this cause, do not in any way represent open-market policy, but are temporary accommodations extended to the Treasury Department. Still a third exception is the case when purchases or sales of securities are used to offset such influences on the market as gold exports or imports. But with these three exceptions changes in holdings of government securities reflect policy.

Thus, these three types of loans and investments of the Reserve Banks have different meanings and each of them tells some story about the condition of the money market or Federal Reserve policy.

Currency.—It is possible from the Federal Reserve statement to find out each week approximately the increases or decreases in the amount of money in circulation in the country—a most important economic fact, for currency in circulation reflects changes in payrolls, and payrolls reflect changes in industrial activity. Figures for currency in circulation frequently explain the causes of changes in total bills and securities.

But the drawing out from the statement of cur-

rency figures is not as simple as it looks. One might suppose that he could look at the one item, "Federal Reserve notes in actual circulation," and find therein a record of changes in the total amount of money in circulation, but that is not the case. Two other items have to be considered; "Total reserves" and "Non-reserve cash," for these items include various kinds of currency (except Federal Reserve notes) which may be paid into circulation. An increase in reserves and non-reserve cash usually indicates a decrease of money in circulation, and *vice versa,* but there is a still further qualification that has to be made. The reserves of the System increase or decrease not alone as a result of the payments of currency into circulation, or the return of currency from circulation, but they also reflect gold exports or imports. Thus, the first step is to make allowance for changes due to gold imports or exports, which is possible since the total exports and imports at the Port of New York are given out every Thursday afternoon by the Federal Reserve Bank of New York. After this correction has been made, changes in money in circulation can be computed roughly from total reserves, non-reserve cash, and Federal Reserve notes in actual circulation. The computation is subject to some error because of the possibility of gold earmarkings and exports and imports from other parts of the country than New York and several other less important transactions, but the error is usually a small one.

Deposits.—The four deposit items which appear in the Federal Reserve statement are not ordinarily of general public interest, but they are of interest to

the careful student of the money market. The member-bank reserve account represents deposits of member banks with the several Federal Reserve Banks to satisfy the law as to bank reserves, which requires them to maintain with the Federal Reserve Banks deposits in proportion to their liability for their customers' deposits. Variations in the amount of this item reflect changes in the amount of bank deposits throughout the country. Over a long term of years they tend to increase gradually as bank deposits increase with the growth of the country, and in periods of credit expansion these reserve deposits reflect rapidly increases which will be shown in member-bank deposits published later. Week to week fluctuations are mostly due to temporary surpluses of reserves on certain days and temporary deficiencies of reserves on other days, which average out over a period of weeks.

Government deposits represent the working balance of the United States Government with the Federal Reserve Banks, against which the government draws checks for current payments of various kinds, ranging from pensions to purchases of commissary supplies. When these government deposits are depleted they are restored by calling in deposits from depositary banks, where deposits have been created by the sale of government short-term issues for book credit. The item "Government deposits" usually shows little fluctuation and is maintained at a figure generally between 10 and 30 millions. Sometimes it runs above that amount, when the Treasury is receiving income taxes more rapidly than it disburses or reinvests the money, and on such occasions

an increase in government deposits to 70 or 80 millions is frequently accompanied by firm money conditions because this money is drawn out of the money market. But this is a rare occurrence and ordinarily the item is an unimportant one. It is only when it reaches unusual size that it becomes a factor in explaining tendencies in the money market.

Foreign bank deposits are the deposits placed with the Reserve Banks by foreign banks of issue, largely to meet their current payments in this market. In late years, as was indicated in Chapter XIV, foreign banks of issue have kept considerable sums in this country, but most of these sums are in the form of investments, and the balances maintained with the Reserve Banks are simply working balances. The amounts invested by the Reserve Banks for these foreign banks are not reported upon except as they appear in the last item in the statement, "Contingent liability on bills purchased for foreign correspondents." A part of the funds which the Reserve Banks have invested in this country for foreign correspondents has been invested in bankers' acceptances, and when these carry an obligation of the Federal Reserve Bank they are shown as a contingent liability. Foreign bank deposits are ordinarily a small item and fluctuate but little, but any fluctuations have the same effect on the money market as fluctuations in government deposits.

Other deposits represent largely the deposits of non-member banks, which have clearing accounts at the Reserve Banks. This is an item which also fluctuates very little.

Collection Accounts.—Two other comparatively large items in the statement which have not been commented upon have to do with the operations of the Reserve Banks in handling checks for collection. On the resources side an item appears as "Uncollected items," which represents the checks which the Reserve Banks have received for collection, but for which they have not been reimbursed. On the liabilities side another item appears as "Deferred availability items," for the proceeds of these uncollected checks are to be credited to member-bank accounts at the end of certain specified periods, in accordance with the time schedule which was described in Chapter V. The amount for "Uncollected items" is always a little larger than that for the "Deferred availability items," for the Reserve Banks are constantly giving banks credit for the checks deposited with them, in accordance with a time schedule and without waiting for the actual collection of the checks. The time schedule is a little more generous than the time which is in fact required to collect the checks, and thus the Reserve Banks currently advance a small amount of funds to the banks.

Reserve Ratio.—The reserve ratio is the ratio of the total reserves of the Reserve Banks to their liability for deposits and notes in actual circulation. This ratio is of importance because the law prescribes that a ratio of 35 per cent of gold or lawful money must be always maintained against deposits, and a ratio of 40 per cent in gold against note circulation. In the published statement the percentages against notes and against deposits are

not treated separately, but are lumped together for purposes of convenience. In recent years the reserve ratio has had little significance because the reserves of the System have been so large that fluctuations in the reserve ratio could be completely disregarded in the determination of Federal Reserve policy.

Using the Statement.—The Federal Reserve statement, as must have appeared from this discussion, is not a simple affair. It cannot be simple because it is an epitome of the nation's banking affairs, which are not simple. It has been suggested here that the casual reader can learn much of the current trends in business and finance if he will observe the movement of a few items in the statement, including total bills and securities, bills discounted, total government securities, and possibly the movement of currency, as revealed in total reserves and Federal Reserve notes in circulation. These items tell a revealing story of the changes in the nation's business and finance.

For the more expert student of the money market, other items in the statement will assume significance. The Federal Reserve Banks represent practically the only avenue through which funds may be put into the money market, or through which funds may be withdrawn from the money market. And it is possible from the weekly statement to compute the gains and losses to the money market each week in much the same way as these computations are made in Chapter IX.

As an added explanation of some of the items in the statement, concerning which little has been said

in this chapter, there is included as an appendix to this book a statement quoted from the annual report of the Federal Reserve Bank of New York, which attempts to explain briefly the significance of each item in the statement.

SUMMARY.

1. The Federal Reserve System publishes one of the most complete weekly statements of any bank of issue in the world.
2. This statement reflects each week the country's banking operations and indirectly the movement of business.
3. The most significant single item in the statement is "Total bills and securities," which shows the total amount of credit extended by the Reserve Banks.
4. "Total bills and securities" today takes the place of the reserve statement of the New York Clearing House banks as the best index of the country's credit position.
5. "Total bills discounted" represents total borrowing by member banks at the Reserve Banks —the amount of Reserve Bank credit in use for which member banks feel direct responsibility
6. "Bills bought in the open market" reflects conditions in the bill market and in the money market generally.
7. "Total U. S. Government securities" reflects largely Federal Reserve open-market policy.
8. Changes in money in circulation can be estimated from the Federal Reserve statement by combining changes in "Federal Reserve notes

in actual circulation" with changes in "Total reserves" and "Non-reserve cash" after allowance for gold exports and imports.

9. Changes in the four deposit items are primarily interesting because increases in these deposits withdraw funds from the money market and decreases put funds into the market.
10. The reserve ratio has had little significance in recent years. Reserves have been so large that the ratio could be ignored in determining policy.
11. Since the Reserve Banks are practically the only avenue through which funds may be added to or withdrawn from the money market, a careful analysis of the statement reveals the causes of money market changes.

APPENDIX A

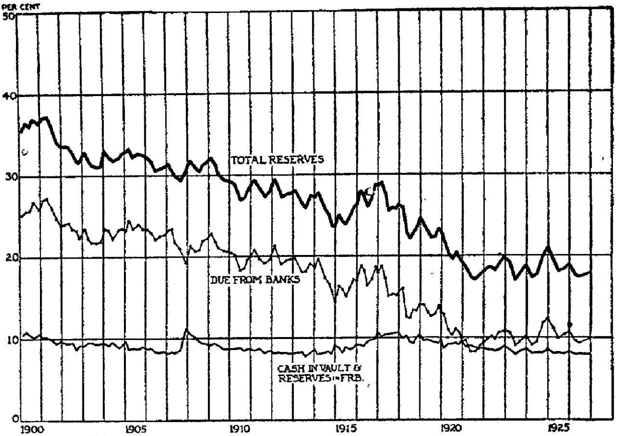


DIAGRAM 47—PERCENTAGE OF RESERVES TO NET DEMAND AND TIME DEPOSITS OF COUNTRY NATIONAL BANKS.

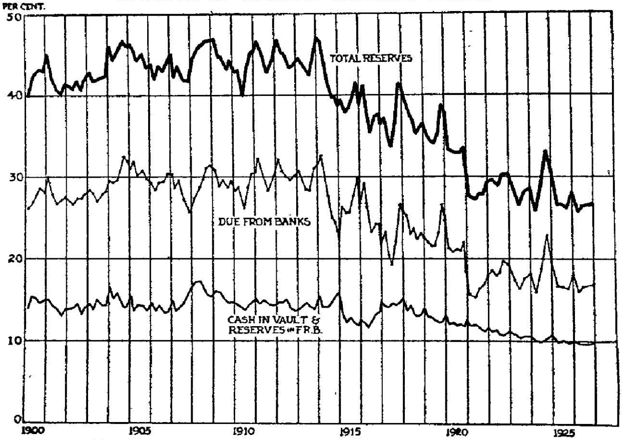


DIAGRAM 48—PERCENTAGE OF RESERVES TO NET DEMAND AND TIME DEPOSITS OF NATIONAL BANKS IN RESERVE CITIES.

(St. Louis included throughout; prior to July 1, 1922, it was classified as a central reserve city.)

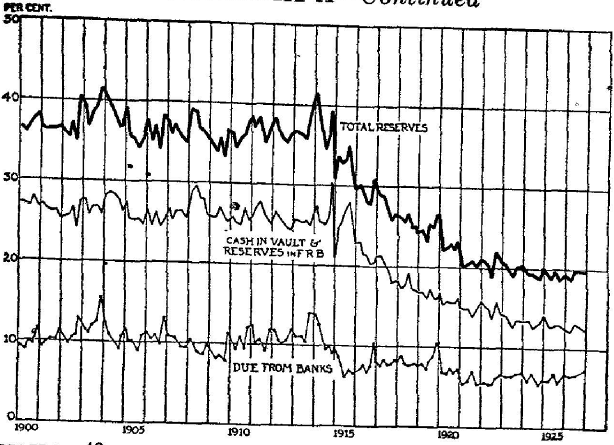


DIAGRAM 49—PERCENTAGE OF RESERVES TO NET DEMAND AND TIME DEPOSITS OF NATIONAL BANKS IN THE CENTRAL RESERVE CITIES, NEW YORK AND CHICAGO.

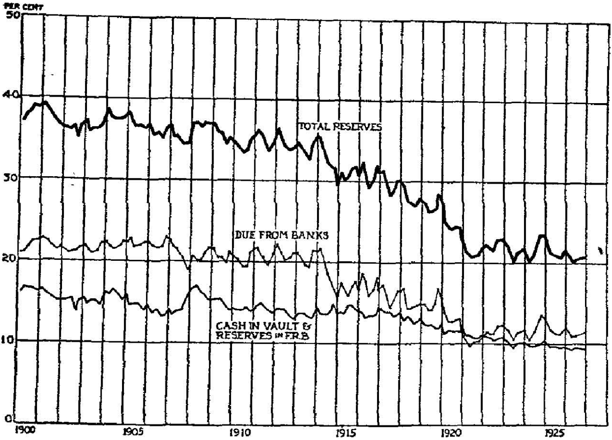


DIAGRAM 50—PERCENTAGE OF RESERVES TO NET DEMAND AND TIME DEPOSITS OF ALL NATIONAL BANKS.

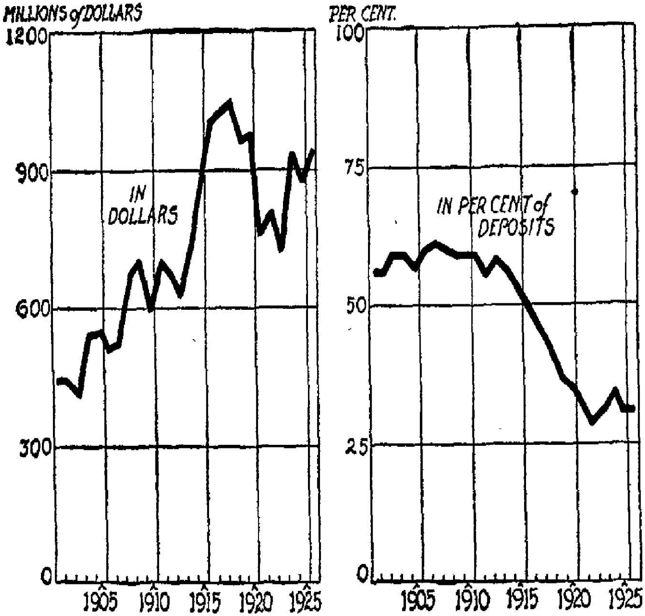


DIAGRAM 51—BANKERS' BALANCES IN NATIONAL BANKS IN NEW YORK CITY (MANHATTAN) IN DOLLARS AND IN PER CENT OF NET DEMAND AND TIME DEPOSITS. (Nearest date to June 30 each year.)

APPENDIX B

TABLE 18—STATEMENT OF CONDITION FEDERAL RESERVE BANK OF NEW YORK

RESOURCES	Dec. 31, 1926	Dec. 31, 1925
CASH RESERVES held by this bank against its deposits and note circulation:		
Gold held by the Federal Reserve Agent as part of the collateral deposited by the bank when it obtains Federal Reserve notes. This gold is lodged partly in the vaults of the bank and partly with the Treasurer of the United States...	$ 282,987,466.59	$ 329,996,016.59
Gold redemption fund in the hands of the Treasurer of the United States to be used to redeem such Federal Reserve notes as are presented to the Treasury for redemption..........................	15,197,976.79	13,516,129.74
Gold and gold certificates in vault...	439,891,808.03	331,225,694.40
Gold in the gold settlement fund lodged with the Treasurer of the United States for the purpose of settling current transactions between Federal Reserve districts..	223,474,611.35	254,226,803.87
Legal tender notes, silver, and silver certificates in the vaults of the bank (available as reserve only against deposits)...............	22,523,994.00	27,256,282.00
Total cash reserves...........	$ 984,075,856.76	$ 956,220,926.60
Non-reserve cash consisting largely of national bank notes, and minor coin	$ 15,893,779.00	$ 16,966,978.42
LOANS AND INVESTMENTS:		
Loans to member banks:		
On the security of obligations of the United States.............	$ 146,539,450.00	$ 197,709,000.00
By the discount of commercial or agricultural paper or acceptances	37,935,764.92	35,234,620.12
Acceptances bought in the open market.........................	101,443,211.79	42,019,937.59
United States Government bonds, notes, and certificates of indebtedness	58,863,750.00	57,199,050.00
Foreign loans on gold.............	....	2,106,000.00
Total loans and investments....	$ 344,782,176.71	$ 334,268,607.71
MISCELLANEOUS RESOURCES:		
Bank premises....................	$ 16,276,254.61	$ 16,617,060.69
Checks and other items in process of collection.....................	188,450,357.86	170,992,612.34
All other miscellaneous resources ...	1,788,471.18	4,162,451.27
Total miscellaneous resources...	$ 206,515,083.65	$ 191,772,124.30
Total resources...............	$1,551,266,896.12	$1,499,228,637.03

TABLE 18—(CONTINUED)

LIABILITIES	Dec. 31, 1926	Dec. 31, 1925
NOTES IN CIRCULATION:		
Federal Reserve notes in actual circulation, payable on demand. These notes are secured in full by gold and discounted and purchased paper	$ 416,874,122.50	$ 393,036,812.50
Total notes in circulation	$ 416,874,122.50	$ 393,036,812.50
DEPOSITS:		
Reserve deposits maintained by member banks as legal reserves against the deposits of their customers	$ 835,959,724.96	$ 847,248,505.07
United States Government deposits carried at the Reserve Bank for current requirements of the Treasury	498,341.80	3,183,106.57
Other deposits including foreign deposits, deposits of nonmember banks, etc.	34,844,167.75	11,282,630.44
Total deposits	$ 871,302,234.51	$ 861,714,242.08
MISCELLANEOUS LIABILITIES:		
Deferred items, composed mostly of uncollected checks on banks in all parts of the country. Such items are credited as deposits after the average time needed to collect them elapses, ranging from 1 to 8 days	$ 162,884,891.11	$ 150,262,580.52
All other miscellaneous liabilities	2,142,447.92	1,856,109.53
Total miscellaneous liabilities	$ 165,027,339.03	$ 152,118,690 05
CAPITAL AND SURPLUS:		
Capital paid in, equal to 3 per cent. of the capital and surplus of member banks	$ 36,449,250.00	$ 32,394,500.00
Surplus—That portion of accumulated net earnings which the bank is legally required to retain	61,613,950.08	59,964,392.40
Total capital and surplus	$ 98,063,200.08	$ 92,358,892.40
Total liabilities	$1,551,266,896.12	$1,499,228,637.03

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